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48TH ANNUAL MINES MINISTERS' CONFERENCE

Report on Mineral Exploration
Expenditures and Flow-through Share Funding

Federal

HALIFAX, Nova Scotia
September 22-24, 1991

48TH ANNUAL MINES MINISTERS' CONFERENCE

Interdepartmental
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HALIFAX, Nova Scotia
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**REPORT ON
MINERAL EXPLORATION
EXPENDITURES AND
FLOW-THROUGH SHARE FUNDING**

BY THE

**INTERGOVERNMENTAL WORKING GROUP
ON THE MINERAL INDUSTRY**

**PREPARED FOR
THE MINES MINISTERS' CONFERENCE
HALIFAX, NOVA SCOTIA**

September 1991



**Energy, Mines and
Resources Canada**

**Énergie, Mines et
Ressources Canada**



FOREWORD

The intent of this report is to present the facts as to the current level of mineral exploration expenditures and flow-through share financing in Canada. The data and views expressed have been assembled and agreed upon through a joint federal/provincial project of the Intergovernmental Working Group on the Mineral Industry (IGWG).

The Mineral Policy Sector of the Department of Energy, Mines and Resources (EMR), which prepared reports compiled for the Mines Ministers' Conference in 1988, 1989 and 1990, has coordinated the preparation of this report.

Throughout this report mineral exploration refers to exploration for metals, nonmetallic minerals and coal, but not to oil sands, tar sands and oil and gas.

EXECUTIVE SUMMARY

Total mineral exploration activity in 1990 was about \$750 million according to the "preliminary" estimate data of the federal-provincial surveys. This was down slightly from the \$828 million achieved in 1989 and considerably lower than the approximate \$1.3 billion expended in 1987 and \$1.35 billion expended in 1988.

Overall, in 1991, exploration in the provinces and territories is expected to be down from the level in 1990 as a result of a reduced level of flow-through share financing. While still preliminary, EMR's current view of total exploration activity for 1991 is that amounts spent will likely be in the area of \$530-\$580 million.

The amount of money raised by flow-through shares in 1990 is now estimated by EMR to have been about \$250 million, down approximately \$100 million from the \$350 million level experienced in 1989. EMR estimates that flow-through share funding for 1991 will fall to somewhere around \$40 million.

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SECTION A. CURRENT OUTLOOK FOR CANADIAN MINERAL EXPLORATION AND FLOW-THROUGH SHARE FINANCING

This paper reports on the current outlook and recent historical trends in both flow-through share financing activity and mineral exploration.

1. Outlook for Flow-Through Share Funding In 1991

1.1 Introduction

This section focuses on the quantity of funds raised for exploration by means of flow-through share financing. In recent years, the majority of junior exploration has been financed by flow-through shares while, for the most part, seniors now finance their exploration by means other than flow-through shares.

Flow-through share financing is an important element in determining the junior component of the total exploration picture. Since most junior companies are public and need approval from the stock exchanges for their placements, the information on their financing activities was obtained mainly from publications reporting on stock exchange activities or from information gathered directly from the exchanges.

1.2 Recent Background

The great increase in flow-through share financing over the 1985-88 period probably would not have been possible without the emergence of the large limited partnerships. These partnerships proved successful because of their ability to mass market flow-through shares and diversify risk. Table 1 illustrates the impressive contribution made by diversified limited partnerships to the total dollar volume of flow-through funds raised in the years 1987 to 1990.

However, in 1991, diversified limited partnerships withdrew from the flow-through share market. At the time of writing, no large limited partnerships have come to the flow-through share market in 1991.

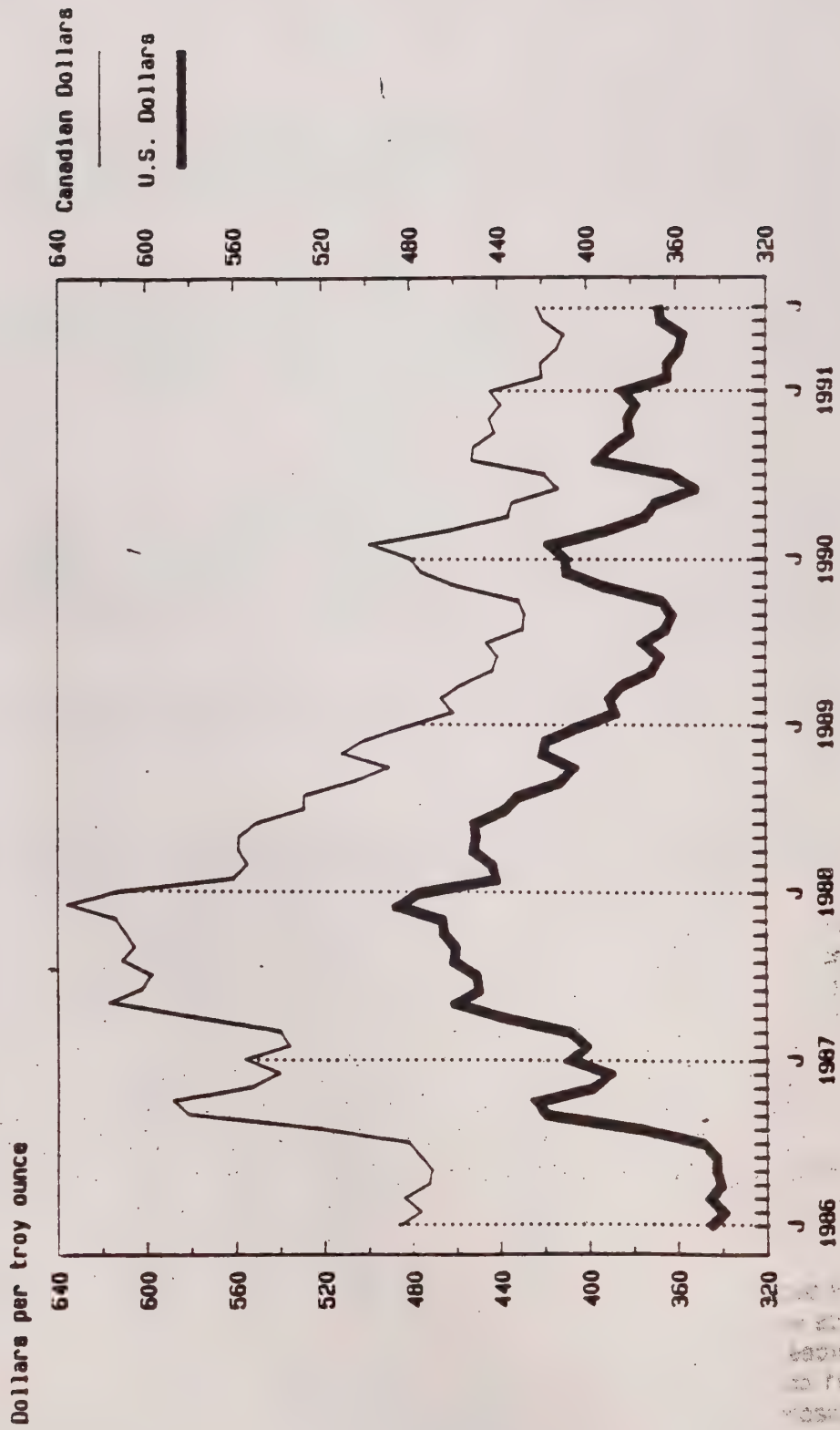
TABLE 1. FLOW-THROUGH SHARE FUNDS RAISED BY DIVERSIFIED LIMITED PARTNERSHIPS IN 1987-90

	Value of Issues Sold			
	1987	1988	1989a	1990a
	(\$ million)			
TAP	28	23	0	0
CMP	239	234	113	89.4
NEF		8	0	0
MVP	57	26	0	0
NIM	260	270	49	0
FIRST EX	47	21	0	0
MIDDLEFIELD	29	5.5	5.5	10.9
MINTAX	15	3.5	0	0
Total	675	591	167.5	100.3

a The figures for 1989 and 1990 generally represent financing for mining only. Some limited amounts of funds raised for exploration for oil and gas are, however, included in the 1987 and 1988 totals. The numbers for 1989 and 1990 include the so-called "gross-up" whereby companies retained CEIP monetary incentives and spent them as well.

- Nil.

Figure 1
MONTHLY AVERAGE GOLD PRICE
JANUARY 1986 TO JULY 1991



1.3 Stock Exchange Data

The first half of 1991 has given signs of renewed investor confidence in the stock markets and there has been a reasonable amount of money for new stock issues of good quality. This undoubtedly augurs well for senior companies, but the good fortune has not extended to the junior sector.

Stock market conditions for junior equities remain weak. The Vancouver Stock Exchange (VSE) index—if taken as a proxy for the measure of investor interest in junior stocks—peaked at 2015 points in May 1987, the same year in which the volume of flow-through share financing peaked. The index has declined by 33 percent since the middle of 1990 and in January 1991 fell below the 500-point level for the first time in the index's 8-year history. This continues the downward trend that started following the 1987 stock market crash. On July 1, 1991, the index stood at 580 evidencing only a marginal recovery from its lowest point.

Statistics provided by the VSE indicate that some \$7.3 million of flow-through share financing was raised on the VSE through 29 private placements during the first six months of 1991. The \$7.3 million includes \$0.8 million that will be used for oil and gas exploration, which leaves \$6.5 million available for mining exploration. This represents a \$250 000/week average for mining. If this financing trend continues, \$13 million will be raised for mining on the VSE in 1991.

Data from the Montreal Exchange (ME) and the Toronto Stock Exchange (TSE) indicate that, excluding amounts raised by interlisted companies, some \$4 million of flow-through share financing has been raised on these two exchanges. Mineral exploration will use \$3.5 million of this amount. If this financing trend continues, \$7 million will be raised for mining on the ME and TSE in 1991.

1.4 Outlook

The various amounts of flow-through share funds raised for mining on the three stock exchanges add up to \$10 million at July 1, 1991. Assuming that an equal amount of funds will be raised in the second half of 1991 would lead to a conclusion that a total of \$20 million of flow-through share financing would be available for the whole year.

However, traditional late fall and year-end tax shelter "take-up" activity could increase the total amount of funds available for juniors. In fact, recent announcements indicate that flow-through share financing for July was over \$3 million. Although it is difficult to forecast the amount of flow-through share financing for the entire year at this time, EMR believes that \$40 million represents a reasonable estimate for flow-through share financing for 1991 because recent years' experience has demonstrated that the second half of the year's financing is much stronger than the first half of the year.

2. Outlook for Exploration in 1991

2.1 Introduction

This section looks at the expected level of total mineral exploration, as compared to its financing. Since we are looking ahead, the usual statistical reporting sources are supplemented by other sources. The section firstly reports the results of the federal-provincial "Intentions Survey" for 1991 co-ordinated by Statistics Canada and EMR. While this is the latest "complete" survey available, it suffers from a serious shortcoming in that the "intentions" in question were gathered

in the December 1990-March 1991 period, and the results of this once-a-year survey may no longer be current given that many months have elapsed.

Another source of information comes from a modelling technique designed by the Mineral Policy Sector to forecast the amount of total exploration and the amount of senior company exploration. This modelling technique is based on a "statistically significant" relationship between exploration activity and metal prices.

Thirdly, this section reviews recent levels of diamond drilling to give a sense of the actual trend in exploration activity.

2.2 EMR and Statistics Canada Surveys of Exploration Spending Intentions - 1991

Methodology

On October 31, 1990, Statistics Canada sent 350 questionnaires to mineral producing firms. EMR has assumed responsibility for the collection of data from the non-producing firms and has sent out close to 3300 questionnaires (jointly with provincial governments that participate in this exploration survey). It should be noted that one company can receive several questionnaires depending on the number of provinces in which the company is working. The number of companies actually engaged as operators of exploration projects in Canada is more like 900. Other joint-venture partners provide exploration funding but, because they are not project operators, they do not report intended expenditures on exploration. In this survey, companies were asked to report intended exploration expenditures for their fiscal year that ended between April 1, 1991 and March 31, 1992.

The exploration expenditure statistics were collected for both "general" and "minesite" exploration. Forecast exploration figures include expenditures in the following categories: field expenditures on physical work and surveys; related land costs; overhead expenditures in the field; and, exploration-related head office expenses.

Results

Statistics Canada published the results of its survey under the heading "on-property exploration" (minesite exploration) in its annual publication "Exploration, Development and Capital Expenditures for Mining and Petroleum and Natural Gas Wells" - Intentions 1991 (Statistics Canada catalogue 61-216). The Statistics Canada intentions total for minesite exploration for 1991 is \$88 million. This figure has since been revised upward to \$98 million, based on updated information received by EMR.

EMR will release the results of its survey in the September 1991 issue of its Canadian Mineral Industry Monthly Report. The first indication suggests that "general exploration" (off-property exploration) would be \$548 million.

Accordingly, on the basis of company intentions in the December 1990-March 1991 period, total exploration (both on- and off-property) for 1991 would be expected to total about \$646 million (\$548 million plus \$98 million).

Interpretation

The Statistics Canada and EMR surveys of intentions provided an indication of the late-1990 industry view of total exploration spending expectations for 1991. However, because intentions expressed in late 1990 may subsequently have been modified by events that can limit the availability of funds, such as stock market conditions, changing metal prices and other general economic factors such as the current recession or company-specific factors, it may be that the results of this survey can no longer be interpreted as being realistic forecasts of the exploration that will be ultimately performed in 1991.

Table 2 shows intentions, as well as preliminary and actual expenditures, for minesite and general exploration for the years 1984 to 1991. The table demonstrates that for the period 1985-88 total expenditures reported initially on a preliminary basis, and then later on an actual basis, generally exceeded intentions for the same period. In 1989, this pattern was reversed. The explanation for the period of 1985-88 could be that exploration funding was becoming more abundant than companies had originally anticipated but, starting in 1989, there was a decline in the availability of flow-through share funds that companies had not expected. If so, then, 1991 actual exploration could be lower than the 1991 intentions data indicate.

2.3 Senior Firm Exploration Spending for 1990 and 1991

Methodology

Information on exploration spending by type of company (1989 actual, 1990 preliminary and 1991 intentions) is now available from the federal-provincial survey of preliminary and forecast exploration expenditures. About 224 active senior companies in 1990 and 195 in 1991 reported exploration spending. Included in the numbers for senior companies are producers and their affiliates as well as foreign and petroleum companies. For joint ventures, total project expenditures are reported by the project operator. Accordingly, senior participation has at times been subject to overestimation. Despite this fact, data analysis has been consistent over the years and a clear trend can be noted.

Results

According to the federal-provincial survey, the decrease in the level of expenditures made by seniors was significant from 1988 to 1989, down 22% from \$708 million to \$555 million. The decrease is likely to continue, but to a smaller extent. The preliminary estimate for 1990 (\$502 million) is down 10 percent from 1989 and the "Intentions" for 1991 (\$462 million) is 8 percent lower than 1990 expenditures. Expenditures made by seniors contributed to 52 percent of the total exploration expenditures in 1988, 67 percent in 1989 and 1990 and an expected 72 percent in 1991.

With overall intentions for 1991 of \$646 million and senior intentions of \$462 million, the value of junior intentions for 1991 was \$184 million. However, junior exploration spending levels are determined more by availability of financing than by company intentions.

TABLE 2. COMPARISON OF INTENTIONS, PRELIMINARY AND ACTUAL EXPLORATION EXPENDITURES, 1984-91

	Intentions	Preliminary	Actual
	(\$ millions)		
1984			
Minesite Exploration		158.6	136.4
General Exploration		389.7	480.9
Total Exploration	na	548.3	617.3
1985			
Minesite Exploration	150.9	89.4	100.1
General Exploration	361.2	471.5	488.8
Total Exploration	512.1	560.9	588.9
1986			
Minesite Exploration	87.5	110.2	108.6
General Exploration	431.2	483.6	589.3
Total Exploration	518.7	593.8	697.9
1987			
Minesite Exploration	122.6	121.5	161.0
General Exploration	583.2	849.6	1 139.0
Total Exploration	705.8	971.1	1 300.0
1988			
Minesite Exploration	154.7	138.7	143.0
General Exploration	891.0	1 107.9	1 207.0
Total Exploration	1 045.7	1 246.6	1 350.0
1989			
Minesite Exploration	111.7	160.0	115.3
General Exploration	832.2	766.7	712.5
Total Exploration	943.9	926.7	827.8
1990			
Minesite Exploration	150.0	107.7	
General Exploration	633.0	643.5	
Total Exploration	783.0	751.2	na
1991			
Minesite Exploration	97.9		
General Exploration	548.3		
Total Exploration	646.2	na	na

Source: Statistics Canada and federal-provincial survey of mining and exploration companies. The 1990 Actual surveys is currently in progress, and the 1991 Preliminary and Actual surveys will not be sent out until late 1991 and early 1992, respectively.

na Not available.

2.4 Outlook for Exploration Based on Metal Prices

Methodology

An analysis of historical data indicates that the level of expenditures on mineral exploration in a given year can be linked to the previous year's metal prices. This may be because companies that spend money on exploration view it like any other investment, with expected returns being dependent on expected revenues from the subsequent mining of discovered deposits. It also appears that current commodity prices figure prominently in the minds of investors in exploration when predicting the course of future prices. As well, prices help to determine cash flows and therefore help determine the amount of the funds available for spending on mineral exploration.

Changes in exploration spending are likely to lag price changes because exploration activity in any particular year is the result of a budgeting process that takes place in the preceding year. Budget allocations are therefore likely to reflect metal prices in existence during the immediately preceding year.

Figure 2 shows the relationship, between historic exploration expenditures and the EMR yearly metals price index, lagged one year. The index is a composite of prices of six metals comprising gold, silver, copper, zinc, lead and nickel.

Due, no doubt, to the large increase in the use of flow-through shares by junior companies over the 1986-88 period, the correlation between total exploration spending and metal prices became less pronounced during that interval.

Results

Based on the relationship between total exploration and metal prices observed over the period 1971-90, total exploration expenditures in 1991 could reach an upper value of about \$717 million (Figure 2). Similarly, it is estimated that senior exploration expenditures could amount to as much as \$532 million in 1991 (Figure 3).

Although the model uses average yearly metal prices to predict exploration expenditures, it is likely that a significant price trend during the second half of a year would have an effect not quite captured by the yearly average. If indeed exploration budgets are developed during the latter part of the year, the falling prices experienced during the last quarter of 1990 (and continuing into 1991) may have had an influence on exploration intentions for 1991 that would not have been picked up by the model. In view of this, the model was run using average metals prices for 1990 based on prices at the end of the year. This resulted in an estimate for 1991 of about \$485 for senior exploration and about \$645 million for total exploration.

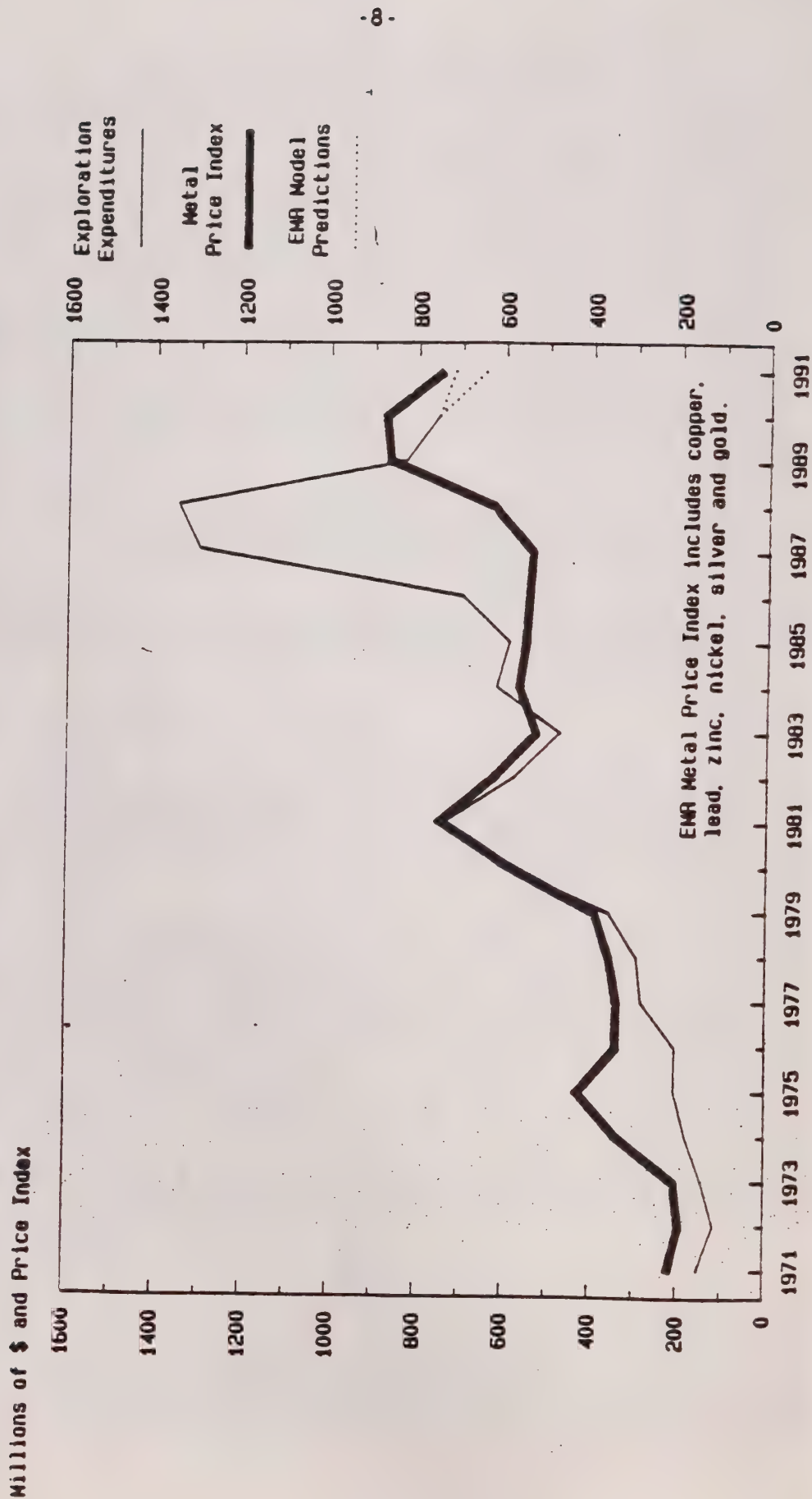
While the difference between these two figures would imply a forecast of \$160 million for junior spending, no attempt was made to predict junior exploration spending by this method, since in that sector, exploration is largely determined by the availability of financing from equity markets.

2.5 Recent Diamond Drilling Activity

Diamond drilling statistics provide another indicator of recent levels of Canadian mineral exploration activity. The Canadian Diamond Drilling Association (CDDA) gathers diamond drilling statistics from its member companies monthly. Available CDDA statistics cover about 50-60 percent of total Canadian contract diamond drilling activity, and are normally available one to three months after month end.

Figure 2

TOTAL EXPLORATION EXPENDITURES
AND
CANADIAN METAL PRICES LAGGED ONE YEAR

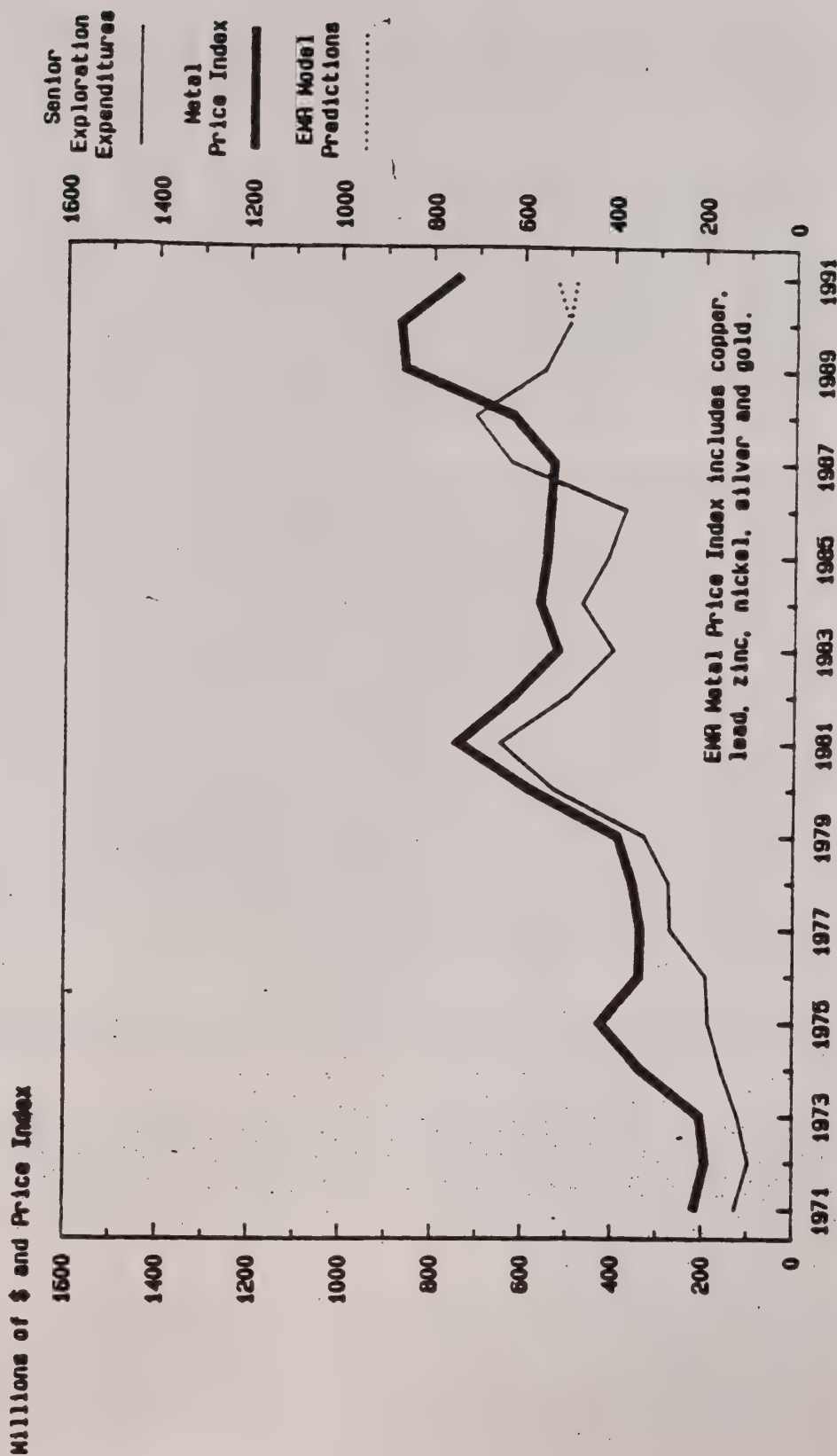


Sources: Statistics Canada Catalogues 61-007 and 61-216 for exploration data 1971-85; for 1986-88, the federal-provincial field expenditures were multiplied by the ratio total/field from Statistics Canada; 1989 final and 1990 preliminary estimate based on federal-provincial surveys co-ordinated by Statistics Canada and EMR; forecasts predicted by EMR model.

Expenditures are in current dollars and include overhead.

Figure 3

SENIOR EXPLORATION EXPENDITURES
AND
CANADIAN METAL PRICES LAGGED ONE YEAR



Sources: For 1971-88 senior expenditures were estimated by EWT; 1989 final and 1990 preliminary estimate based on federal-provincial surveys co-ordinated by Statistica Canada and EWT; 1991 predicted by EWT model. Expenditures are in current dollars and include overhead.

In contrast, because of the delay in getting responses from many companies, annual exploration expenditure statistics gathered by the federal-provincial exploration survey are not normally available until about one year after the end of any exploration year. Therefore, they report on exploration spending and activities that took place during the previous 12 to 24 months.

There has been a reasonably close correlation between annual CDDA drilling footages and Canadian exploration expenditures over the past 10 or 15 years, so that the CDDA drilling statistics depicted in Figure 4 (monthly, 1985-91), Figure 5 (quarterly, 1985-91) and Figure 6 (annual, 1973-90) should provide a reasonable and up-to-date indication of recent national mineral exploration activity trends. In addition, a comprehensive 17-year graph (Figure 7) depicts total Canadian contract drilling up to 1989 as reported annually by drilling contractors to EMR and published in Statistics Canada Catalogue 26-201. Although these two sources provide different total results on an annual basis, the same overall trends are observable in both, even though the CDDA statistics are incomplete because not all Canadian diamond drilling contractors are members of CDDA and not all member companies report their drilling to CDDA.

As can be seen from Figure 5, each of the past three years (1988, 1989 and 1990) has shown a similar pattern of diminishing diamond drilling through the year, with the first quarter of 1989, 1990 and 1991 exhibiting an increase in drilling over the final quarter of the previous year. Drilling has consistently peaked during the first quarter both because flow-through funds from the previous year were carried over into January and February of the following year, and because much drilling must be done during the winter months from the ice on lakes and muskeg areas, which are generally inaccessible to drilling equipment at other times of the year. The general pattern of decreasing drilling through the year in 1988, 1989, 1990 and 1991 contrasts with the pattern of 1986 and 1987, when diamond drilling levels in the second half of the year were higher than in the first half, because of increasing availability of flow-through funding. The decline that started in the first half of 1988 supports the general view that exploration activity began to slow down in 1988 from the peak level reached at the end of 1987 and early in 1988. The slowdown in drilling activity over the last two quarters of 1988 reflects the impact of the reduced availability of financing for the junior firms, whose exploration expenditures depended more on financing by sales of flow-through shares than on favourable metal prices. During the latter half of 1988, the flow-through share market tapered off as the gold price declined and as junior equity markets continued to deteriorate. Despite this slowdown in drilling, total Canadian exploration spending in 1988 was \$1.35 billion, a very high level by historical standards.

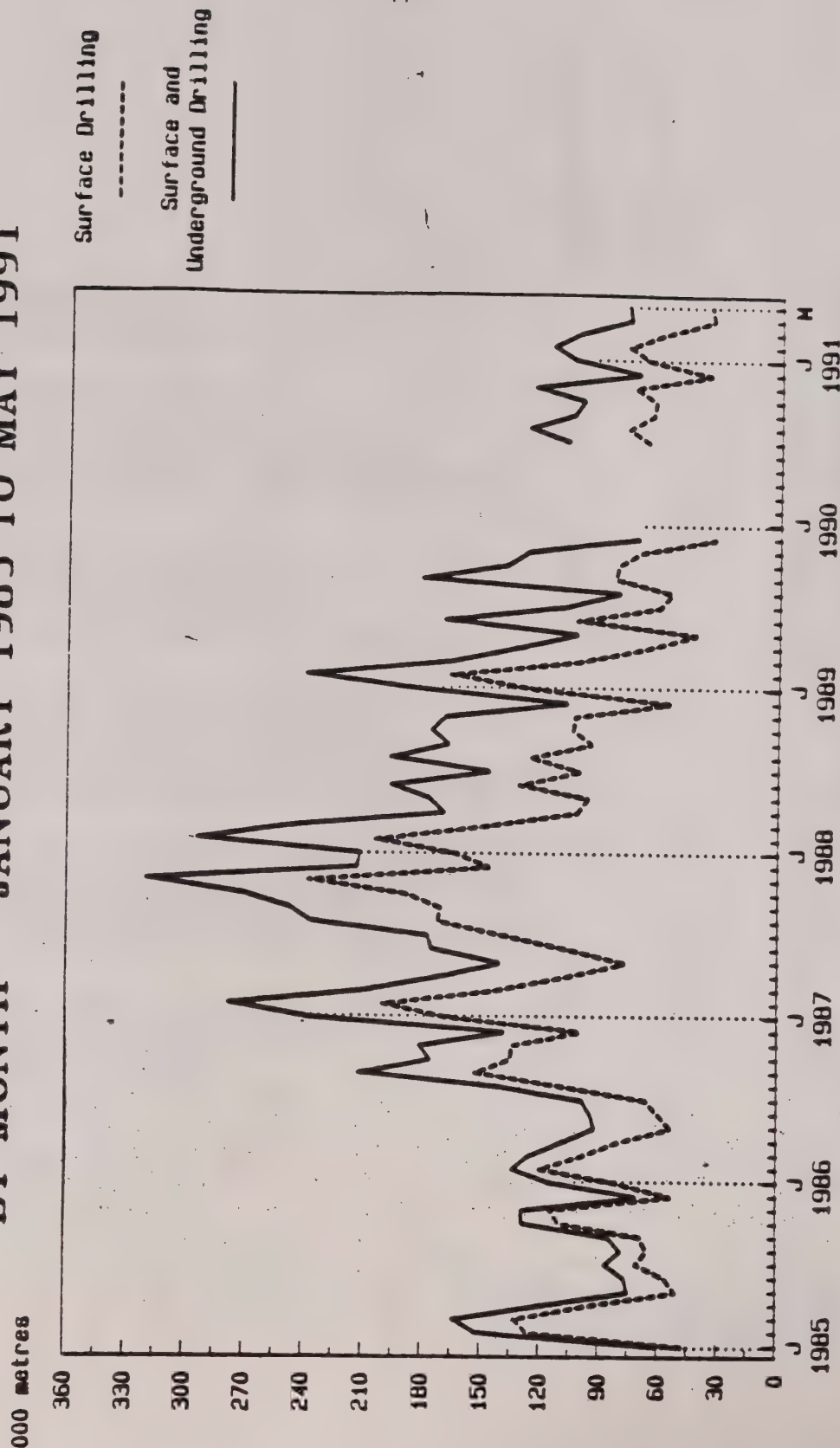
Exploration drilling continued to decline in the second quarter of 1991, largely because junior companies have found it increasingly difficult to raise exploration funds through the sale of shares, whether flow-through or non-flow-through.

The 18-year and 17-year drilling graphs (Figures 6 and 7), together with Canadian exploration data for earlier years, show the all-time highs for diamond drilling that occurred in 1987 and 1988. The levels in 1989 and 1990 were still strong compared to 1981, the drilling peak immediately prior to the takeoff in flow-through share sales, but the number of metres drilled appears to have dropped off significantly in 1991.

Surface diamond drilling activity has fluctuated more than underground drilling (Figures 4, 5 and 7). The likely explanation for this appears to be that a significant amount of the underground drilling consists of contract drilling aimed at establishing replacement ore reserves at producing mines. In the gathering of exploration expenditures statistics, expenditures on this sort of drilling are counted as "development expenditures" rather than "exploration expenditures," so that much of the underground diamond drilling is not "exploration drilling" in the sense of being aimed at the

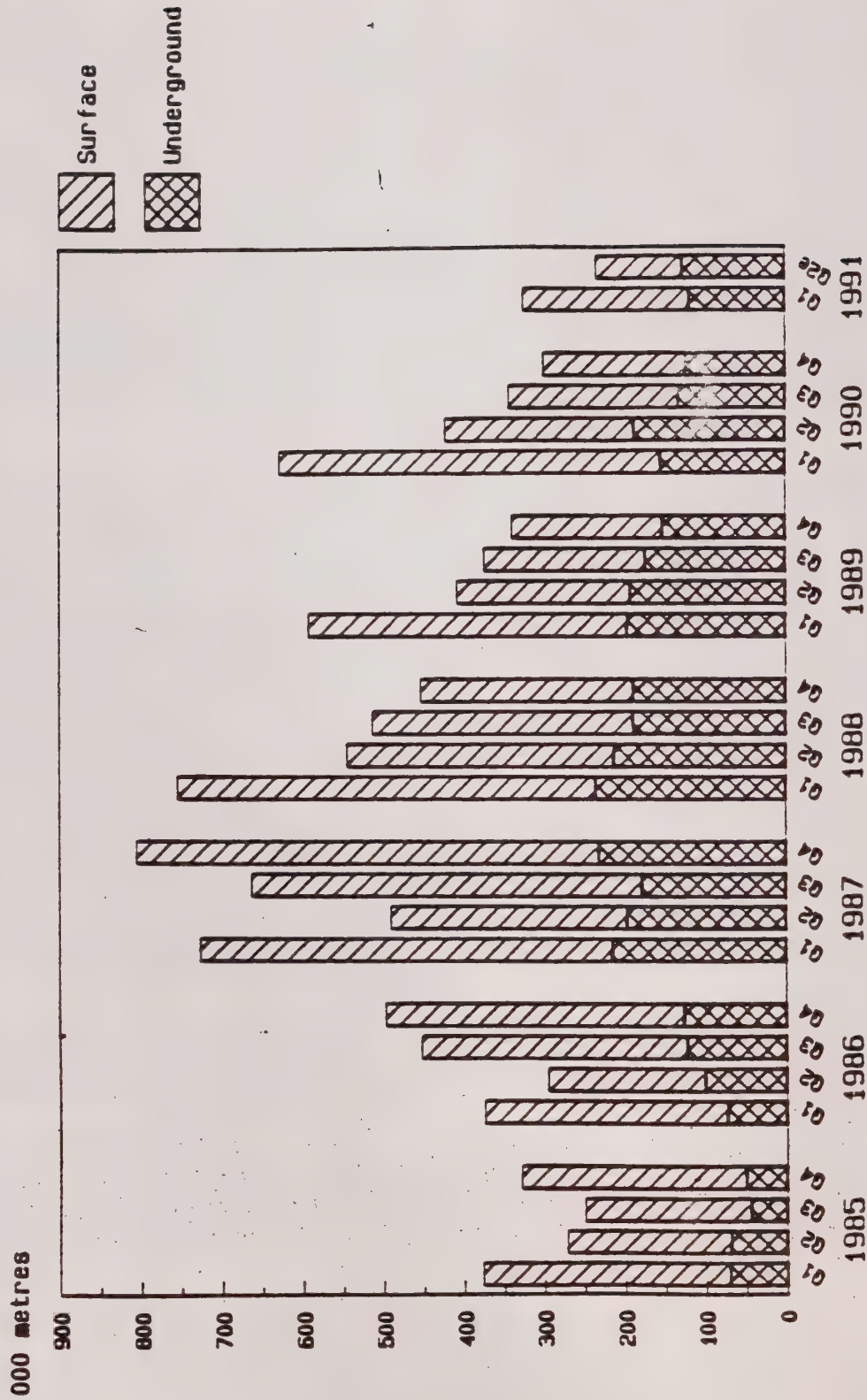
Figure 4

SURFACE AND UNDERGROUND DRILLING BY MONTH - JANUARY 1985 TO MAY 1991



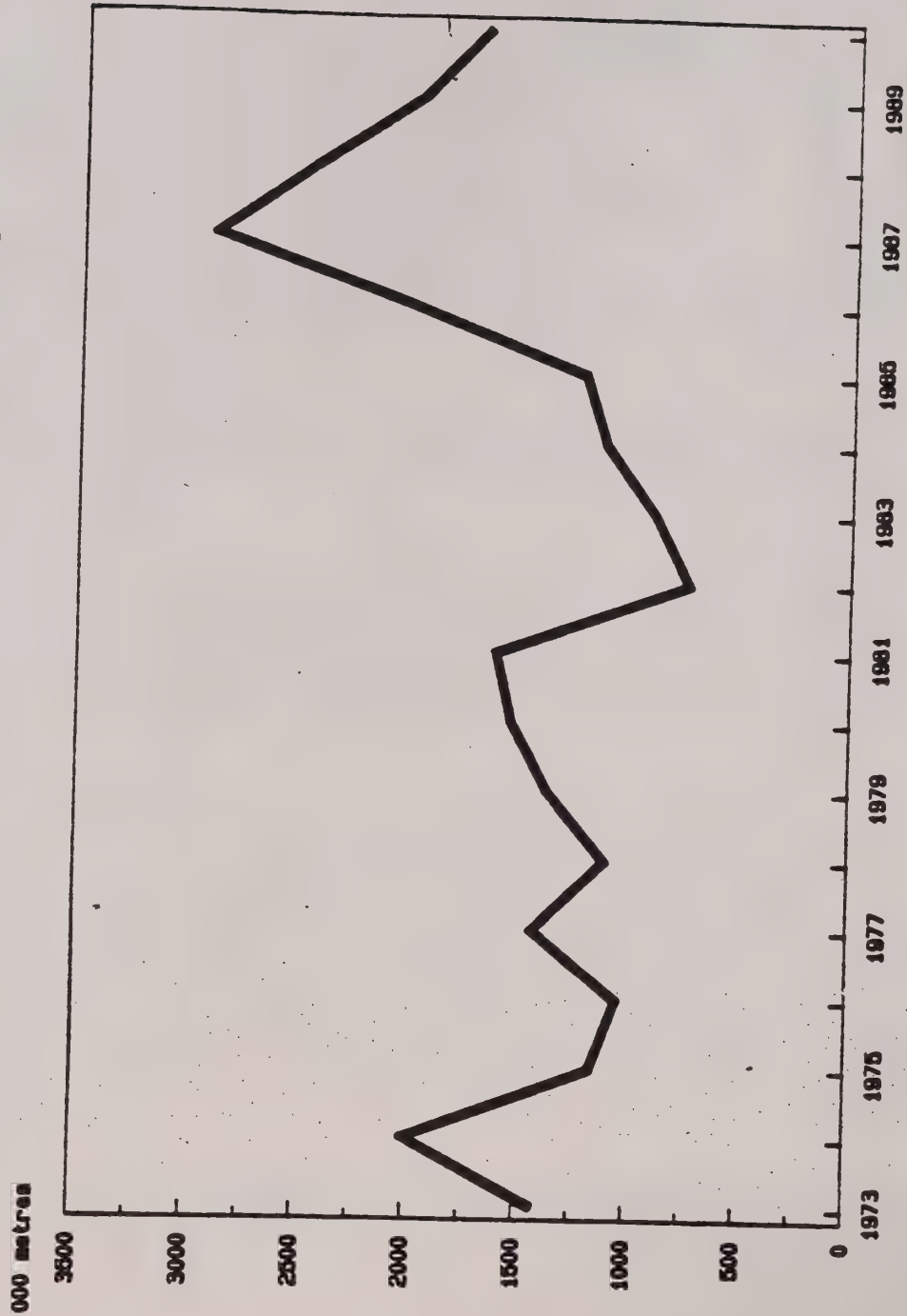
Source: Canadian Diamond Drilling Association.
 Note: These data include approximately 50-60 percent of total drilling activity. Monthly data are not available for the period January-June 1990 because final CDDA statistics for this period were released only as a six-month total.

Figure 5
SURFACE AND UNDERGROUND DRILLING
BY QUARTER - 1985 TO 1991



Source: Canadian Diamond Drilling Association.
Note: These data (as reported to CDDA) include approximately 50-60 percent of total drilling activity.
e Estimate.

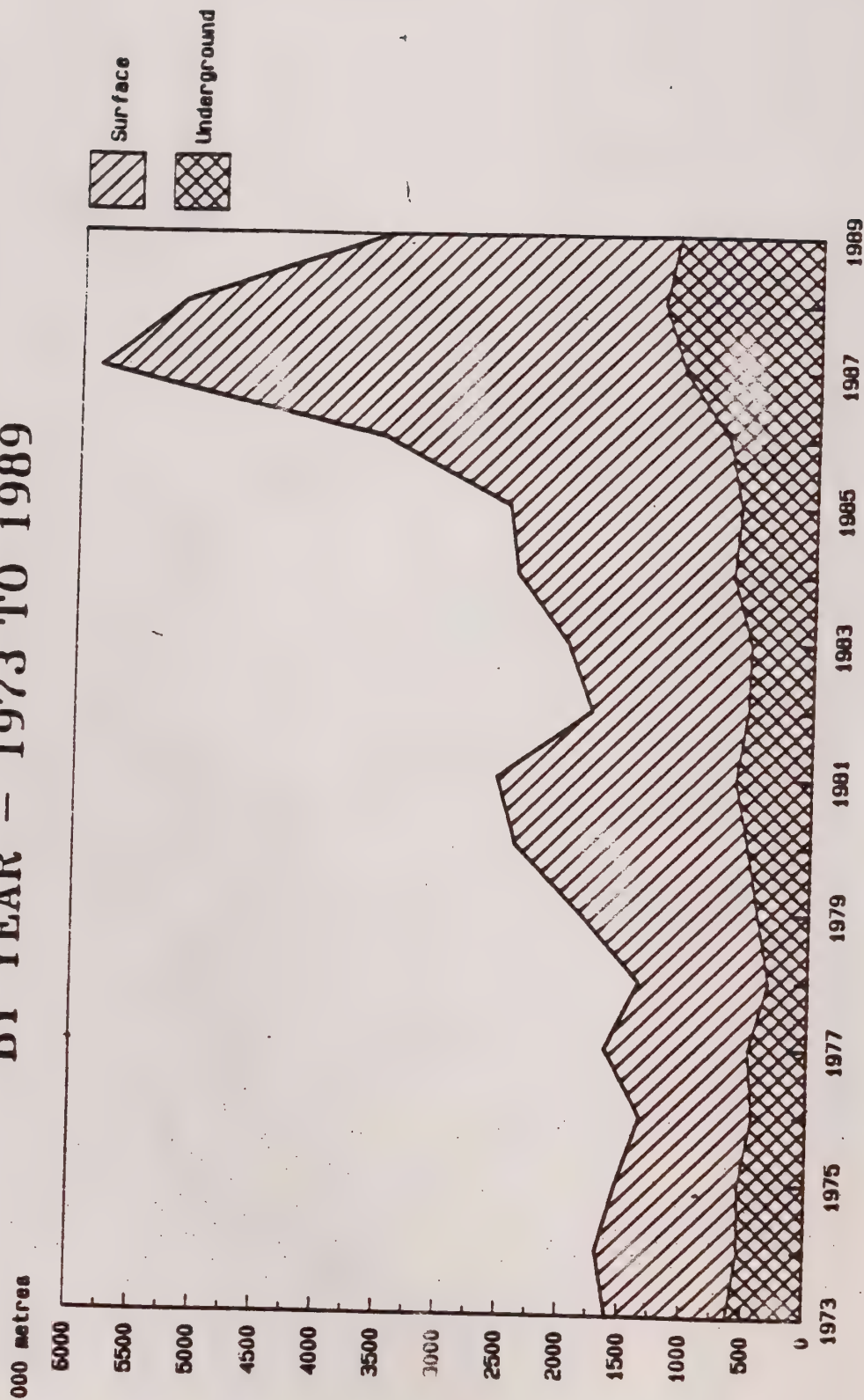
Figure 6
SURFACE AND UNDERGROUND DRILLING
BY YEAR - 1973 TO 1990



Source: Canadian Diamond Drilling Association.
Note: These data include approximately 50-60 percent
of total drilling activity.

Figure 7

SURFACE AND UNDERGROUND DRILLING CONTRACT DIAMOND DRILLING OPERATIONS BY YEAR - 1973 TO 1989



exploration for new mines. However, the increase in the amount of underground diamond drilling that took place during the second half of the 1980s represents underground exploration of gold deposits that were at the exploration stage, that is, they were not producing mines, nor had a production decision been made. However, in interpreting Figures 4 to 7, despite the relatively close correlation of exploration expenditures and metres of contract diamond drilling that has generally applied during the period from about 1975 on, it is important to recognize that recent levels of diamond drilling activity provide only a rough indication of recent levels of Canadian exploration activity and that, because of inclusion of underground drilling at producing mines, Figures 4, 5 and 6 may in effect be overstating recent levels of mineral exploration activity.

3. Overall View on Mining Exploration for 1991

This section brings together the information discussed above.

Total exploration expenditures in 1990 amounted to about \$751 million, with senior exploration at about \$502 million and junior exploration at about \$249 million. This preliminary figure is considerably lower than the \$1.35 billion of expenditures recorded for 1988 and slightly lower than the \$828 million recorded in 1989.

Arriving at an overall total forecast for 1991 requires the comparison of different amounts derived from several sources. The exploration intentions survey indicated that exploration spending in 1991 would be \$646 million. As indicated, this figure included \$462 million for seniors and \$184 million for juniors.

The regression analysis discussed in section 2.4 provides another source of information. The historical relationship between total exploration expenditures and metal prices leads to a figure of \$717 million, or somewhat less, as being a fair estimate based on the average yearly metal prices of 1990. Using the average metal prices that prevailed in the latter part of 1990, the same regression analysis produces an estimate of \$645 million, which is surprisingly close to the intentions survey estimate of \$646 million, with \$485 million for seniors and implying \$160 million for juniors.

Another approach to developing estimates of total exploration expenditures for 1991 is by adding junior common equity financing (including flow-through shares) to senior company intentions. This is an exercise based on financing trends for 1991. A figure of \$462 million for senior exploration spending was obtained from the earlier intentions survey conducted in late 1990, while a figure of \$485 million is obtained under the regression analysis when using late 1990 average metal prices. One could say that these levels of expenditure for seniors are more likely to be assured because senior companies are more sure of their sources of funds than juniors. In recognition of the fact that seniors report total spending for the joint ventures of which they are the operators, and because it is not possible to calculate the precise reduction that would be necessary to avoid an overlap, senior exploration spending has been arbitrarily reduced to \$450 million.

The level of junior exploration spending is more difficult to forecast because it relies to a large extent on the availability of financing and, in recent years, particularly on flow-through share financing. As discussed in Section A, it is estimated that probably about \$40 million of junior flow-through share financing could be raised for 1991. If the level for flow-through share financing turns out to be \$40 million, then there would be some \$140 million of non-flow-through share financing left to be raised, assuming the realization of total junior exploration intentions (some \$180 million) as indicated from the federal-provincial survey. EMR is discounting this level of

junior exploration because the current information on financing does not support that level of junior spending for 1991. A close review of the individual junior company intentions from the federal-provincial survey list and a comparison of individual junior non-flow-through share financings reported in the media and gathered from other available information sources indicate that about \$40 million could be fairly certain. Of the remaining \$100 million of individual company intentions, EMR believes that perhaps, at most, only 50 percent could be financed, that is \$50 million. Adding these values (\$40 million of potential flow-through share financing, \$40 million of probable non-flow-through share financing and a possible additional \$50 million of non-flow-through financing) yields a range of \$80 to \$130 million for juniors.

On the basis of the above forecast for junior exploration and an expected \$450 million of senior exploration spending, EMR is more confident of a total in the range of \$530 to \$580 million than the levels indicated by either the regression model or the federal-provincial survey.

SECTION B. CURRENT REGIONAL OUTLOOK

4.1 Introduction

This section presents comments from provincial and territorial officials on recent exploration activity and gives an indication of what they expect for 1991.

On an overall basis, provinces and territories indicate that grass-roots exploration is down and exploration is more focused on advanced projects. They further indicate that junior exploration is low and that exploration is being planned and carried out mainly by seniors or by juniors that have received funding from seniors. Exploration emphasis has shifted from precious metals towards polymetallic metals and industrial minerals. Taking into account conditions prevailing on financial markets, some provinces have announced new or improved financial assistance for small mining exploration companies in 1990 and 1991.

4.2 Newfoundland and Labrador

Mineral exploration in Newfoundland during 1990 decreased from the record setting levels in 1988 and 1989.

Major exploration efforts in 1990 were directed towards base metals and gold with a small but increasing effort in industrial minerals. Exploration expenditures during 1990 were mainly directed towards advanced exploration projects. These programs were orchestrated and carried out by senior mining firms with only limited exploration being conducted by the junior exploration company sector.

Claim Staking Statistics

The steady rate of increase in the number of claims in good standing during the period 1983-89 has peaked. This figure declined by approximately 20 000 claims in 1990. This trend appears to be continuing into 1991 with first half statistics now standing at 3350 staked and 39 260 claims in good standing.

Diamond Drilling

Diamond drilling is perhaps the single most important activity involved in, and reflection of, exploration activity. The level of activity experienced in 1988 in Newfoundland and Labrador was a result of a combination of factors not the least of which was exploration capital generated by the flow-through tax incentives. The 1989 and 1990 statistics for diamond drilling are down considerably from the 234 000 metres drilled in 1988 but still represent a very healthy level of activity. The forecast for 1991 is 25 000 metres (\pm 5000 metres). This substantial decrease in drilling activity does not augur well for the probability of discovery of new mineral deposits.

Exploration Expenditures

The total value of exploration in 1990 represents a 50 percent decrease from 1988. Forecasts for 1991 indicate that this downward trend in exploration spending will continue. Exploration is now focused on the more advanced projects with a significant reduction in the level of grass roots mineral exploration.

Summary

The projections for 1991 are ominous and disconcerting for mineral exploration in Newfoundland and Labrador. All the major exploration indicators—claims staked, claims in good standing, diamond drilling and exploration expenditures—show a significant decrease from previous years. There is little to suggest a reversal in the downward trend in exploration activity. However, there are a number of promising prospects that continue to be explored by a number of senior mining companies in the province.

NEWFOUNDLAND AND LABRADOR EXPLORATION STATISTICS

	1988	1989	1990P	1991 ^f
	(dollars)			
Annual Exploration Expenditures	41 155 481	36 252 686	23 617 000	13 000 000
Claim Staking				
Claims Stakes	26 199	17 190	10 508	6 000
In Good Standing	65 822	63 596	44 833	26 000
Exploration Field Expenditures				
BM-PM	17 559 585	10 970 673	10 019 723	na
Gold	18 698 498	14 895 933	7 054 863	na
Other	457 370	1 364 328	2 245 051	na
	(metres)			
Diamond Drilling				
Production/				
Development	17 449	16 355	8 884	na
Exploration	217 382	106 497	84 462	na
Total	234 831	122 852	93 346	25 000

Source: Dept. of Mines and Energy (28/06/90)

BM Base metals; PM Precious metals; ^f Forecast; P Preliminary; na Not available.

4.3 Nova Scotia

During 1990, exploration activity in Nova Scotia was characterized by moderate levels of expenditure. There was a renewed interest in polymetallic and base metal targets by a few major companies. Industrial minerals and coal held their own, making their normal contribution to overall activity. The junior companies were not as active as in previous years mainly because of the decline of investor interest in gold exploration. Most of the large-scale surface and underground

exploration programs initiated in 1987 and 1988 were suspended. In general, investment in exploration and mine development has been declining since 1988. This trend is due to the cessation of tax incentive programs, depressed metal prices and a general difficulty in raising high-risk capital. Exploration indicators for 1980-90 are outlined on the accompanying table.

The number of new claims staked in 1990 (10 910) was marginally lower than in 1989. The total number of claims in effect at year-end (28 641) also declined, reflecting a relatively high number of lapsing claims.

The estimated total expenditures for all exploration work in 1990 was \$10 million, less than half the amount spent in 1989. The amount of diamond drilling performed in 1990 (20 000 m) was proportionately low and half the total for 1989.

Most of the exploration work carried out in the first six months of 1991 has been done by senior companies or by junior companies that have received funding from senior companies. There has been a renewed interest by a number of senior companies that had not been exploring in the province in recent years.

The principal targets in 1991 have been base metals in geological environments long known to be good hosts, particularly the lower Carboniferous basins. The search for polymetallic deposits in Precambrian strata of Cape Breton Island has also increased. Exploration for gold in the Meguma environment has declined considerably, however, three major prospects are on hold pending additional financing.

Claim staking for the first six months of 1991 has been at a slightly lower level than the average for 1990. The total amount of claims in effect at year end is also expected to decline in relation to the 1990 total.

Assessment work reported in the first six months of 1991 (reflecting work carried out in the 12 months prior to reporting) totalled approximately \$2 million compared with \$11.6 million for the same period in 1990.

A modified forecast generated from data supplied by Energy, Mines and Resources Canada indicates that the total exploration expenditures for 1991 will probably be lower than for 1990, in the range of \$5-\$8 million.

4.4

New Brunswick

The New Brunswick exploration industry is dominated by six companies representing both the major and junior mineral industry sectors.

The year 1990 ended with the largest number of claims in effect since 1955, even though the number of new claims recorded was down substantially from the previous year. Preliminary data indicate that approximately \$18 million was spent on exploration activity in New Brunswick in 1990.

Respondents to a federal government industry survey on forecasted exploration expenditures have indicated that approximately \$21.7 million will be spent in New Brunswick in 1991. An analysis of available relevant statistics points out that, during the first two quarters of 1991, mineral claim recordings, claim renewals and office visits and information requests by the industry sector are up over the same period last year. Total claims equivalents at the end of June were 30 247, slightly more than the same period in 1990.

EXPLORATION INDICATORS, NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, FOR 1980-90

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
New claims	(75 464)	(52 018)	29 690	29 057	19 268	28 500	32 685	33 419	20 132	11 397	10 910
Total claims and claim equivalents in effect	83 135	94 408	52 236	54 310	40 438	41 173	46 086	63 585	43 590	37 745	28 641
Value of assessment work received (\$ million)	7.5	8.4	4.1	4.2	2.6	2.3	9.9	26.7	29.0	31.3	16.6
Estimated total exploration expenditures (\$ million)	(10.0)	14.6	5.5	6.5	7.3	9.0	21.0	45.0	49.0	22.0	10.0
Total drill footage (1000 metres)		78	24	30	50	45	75	215	110	42	20.0

() Numbers in parenthesis are approximate.

The majority of exploration activity will be concentrated on the search for base metals; however, the precious metal sector will also receive its share of exploration expenditures. Indications are that, in 1991, the exploration sector will conduct the standard ground geoscientific surveys; however, there will also be a concentration of funds on trenching and drilling programs.

4.5 Quebec

FLOW-THROUGH SHARE FINANCING AND EXPLORATION EXPENDITURES IN QUEBEC IN 1990 AND 1991

Flow-Through Share Financing

In Quebec, flow-through share financing of exploration expenditures was severely hurt by the economic slowdown and the termination of the Canadian Exploration Incentive Program. The two-year extension of additional deductions for exploration expenses announced by the Quebec government (up to 66 2/3 percent for certain surface exploration expenses) does not seem sufficient by itself to reverse the unfavourable trend that has prevailed since the 1987 stock market crash. Thus, in 1990, funds raised by this financing mechanism amounted to about \$48 million, which is less than the \$73 million raised in 1989.

This downward trend in flow-through share financing is continuing in 1991. In fact, juniors managed to raise only about \$4 million in the first six months. The anticipated economic recovery could improve the situation before the end of the year, but the expected total amount of funds will surely not exceed the \$15 to \$20 million range.

To help the most dynamic junior mining exploration companies maintain mining activities, in May 1991 the Quebec government set up a one year financial assistance program designed to allow these juniors to carry out exploration projects on their properties. With a \$5 million budget and administered by the Société québécoise d'exploration minière (SQUEM), the program targets Quebec-based junior mining exploration companies that have carried out a minimum of \$300 000 worth of mining exploration work in Quebec since January 1, 1988. Further, eligible projects will require expenditures of at least \$100 000 and cannot benefit from other government incentives.

FINANCING BY FLOW-THROUGH SHARES AND EXPLORATION EXPENDITURES IN QUEBEC

	1988	1989	1990 ^P	1991
	(\$ millions)			
Flow-through shares ¹	154	73	47	15-20 ^I
Exploration expenses				
Off-property	331	164	153	141 ^I
On-property	39	32	33	20 ^I
Total	370	196	186	161 ^I

Source: Ministère de l'Énergie et des Ressources, Québec.

¹ These amounts include expenses related to financing by limited partnerships.
^f Forecast; ^P Preliminary data; ^I Intentions data were derived from the survey carried out in the fall of 1990 and were confirmed through a telephone survey in July 1991.

Exploration Expenditures

The results of the annual survey on the spending "intentions" of mining companies point to total exploration expenditures of \$161 million, \$141 million of off-property expenses and \$20 million for on-property expenses. This represents a 13.4 percent decrease from 1990, a decrease over two times more pronounced than the decrease from 1989 to 1990. This decrease is essentially attributable to the deterioration in flow-through share financing, the main financing source for juniors.

However, we note that in the last three years the decrease in total exploration expenditures is not so pronounced as the decrease in flow-through share financing. The decrease is not as pronounced in part because of investments made by producing companies and their subsidiaries. It is also because of exploration activity in the search for industrial minerals (graphite) and metals (chrome, nickel), as well as traditional exploration for gold.

Claims and Diamond Drilling Statistics

The number of metres drilled by diamond drilling companies and the number of recorded claims are two other useful indicators to monitor the evolution of exploration activity. In 1990, diamond drilling remained practically unchanged from 1989, namely 1.30 million metres. For the first five months of 1991, the number stands at 0.48 million metres compared to 0.63 million metres for the corresponding period in 1990.

As for recorded claims, the total number is 16 000 claims in 1990 compared to 27 000 in 1989. For the first four months of 1991, the number of registered claims is 6405, compared to 5918 for the corresponding period in 1990.

4.6 Ontario

In 1989, mineral exploration and development expenditures totalled \$560 million in Ontario. These expenditures are estimated to decrease to \$420 million in 1990 and are forecast to drop to \$355 million by 1991. In 1988 total mineral exploration and development in the province was \$757 million. This data includes both field expenditures and overhead costs.

Off- and on-property (general and minesite) exploration expenditures are expected to decrease from \$218 million in 1989 to \$141 million in 1990 and \$124 million in 1991. Minesite development expenditures are anticipated to decrease from \$342 million in 1989 to \$279 million in 1990 and \$232 million by 1991. This data includes both field expenditures and overhead costs.

Senior mining companies were responsible for approximately 72 percent of the off- and on-property field exploration expenditures of \$185 million in 1989 compared to 56 percent in 1988. The level of exploration expenditures by junior companies thus accounts for 28 percent in 1989, down from 44 percent in 1988. Percentages for senior companies may be high since funds received from joint venture partners, mostly junior companies, are reported by the senior companies.

The number of claims in good standing in Ontario at the end of April 1991 was about 118 740, down 15 percent from 139 040 claims in April 1990. The number of claims in good standing is considered a good indicator of the level of exploration activity in the previous year. The number of claims in good standing at the end of 1990 was about 125 000, the lowest number since 1982. The number of claims in good standing peaked in 1988 at over 171 000.

Exploration activity is highest in northeastern Ontario. Of the twenty-eight advanced underground or open-pit exploration projects in the province at the end of 1990, 60 percent were located in the northeast.

Approximately 80 percent of the advanced projects are gold properties. As of July 1991, however, many of these projects were inactive. Three base-metal mines are in the development stage (production decision announced) in the Sudbury area of northeastern Ontario.

Ontario's two incentive programs, the Ontario Mineral Incentive Program (OMIP) and the Ontario Prospectors Assistance Program (OPAP), provide financial assistance to qualified individuals and companies involved in mineral exploration and development in Ontario. In April 1990, the Ontario government committed \$30 million to the two programs over 3 years. This funding, together with certain amendments to OMIP is intended to lessen the impact of the discontinuation of the federal government's Canadian Exploration Incentive Program (CEIP) in February 1990.

More than 400 Ontario prospectors received OPAP grants of up to \$10 000 for the 1990/91 fiscal year. The financial assistance provided under OMIP takes the form of grants up to \$300 000 a year covering 30 percent of eligible exploration expenditures. In 1990, \$8 million was disbursed under the program to 150 projects.

Special OMIP assistance provides up to 50 percent of eligible expenditures in selected areas that have suffered or are likely to suffer an economic downturn. The Kirkland Lake - Temiskaming, Elliot Lake, Manitouwadge, Atikokan and Beardmore - Geraldton - Longlac - Nakina areas have been chosen for the extra OMIP incentive funding.

4.7

Manitoba

Mineral exploration expenditures for 1990 are forecast to be \$37.0 million. This compares to an estimated \$38.5 million spent in 1989 and \$40.0 million in 1988. Surface diamond drilling for these three years is estimated at 197 000 metres in 1990, 177 896 metres in 1989 and 270 969 metres in 1988. Current indications are that exploration expenditures for 1991 will be comparable to 1990.

The total area of claims recorded in Manitoba during 1990 was 130 105 hectares, as compared to 184 723 hectares recorded in 1989, and 341 722 hectares in 1988. However, total mineral dispositions (which include claims, permits and leases) in good standing at the end of 1990 totalled 2 291 049 hectares, as compared to 1 865 317 hectares and 1 614 463 hectares at the end of 1989 and 1988, respectively.

The strong emphasis placed on gold exploration for most of the 1980s shifted towards base metals which, contrary to gold, exhibited price strength in the late 1980s. In Manitoba, this is evidenced by the fact that all five advanced mining development projects are for base-metal deposits.

Copper-zinc exploration programs were dominant in the Flin Flon-Snow Lake greenstone belt and to a lesser extent in the Lynn Lake region and in southeastern Manitoba. Exploration for nickel continued along the Thompson belt, particularly on its southern extension under Paleozoic cover. Exploration for gold was carried out in the major greenstone belts of Flin Flon-Snow Lake, Lynn Lake, Gods Lake, Island Lake and Rice Lake.

The Manitoba Mineral Exploration Incentive program was announced in the province's 1991/92 budget. This incentive targets new exploration activities in Manitoba by junior exploration companies. Only investments in ventures financed under a flow-through share agreement or limited partnership will qualify. The province is offering investors a 25 percent grant for eligible investments. The marketing will be carried out by registered non-Crown Manitoba Mineral Exploration Investment Corporations. Manitoba Energy and Mines will consider applications for registration beginning January 1, 1992. Eligible flow-through issues will be limited to \$50 million and the total cost to the province is estimated at \$14.5 million over the life of the program. Enabling legislation through Bill 71 was tabled in the Manitoba Legislature in July.

4.8 Saskatchewan

Saskatchewan Resident Geologists carry out an annual survey of mineral exploration expenditures through telephone interviews of the mining exploration companies and prospecting groups. In January/February of each year, companies and groups are asked to provide an estimate of their current budget on a commodity and area-of-search basis. Since 1987 the survey respondents have also been asked to provide actual expenditures for the previous year.

Although there are about 349 registered property holders in the province, only between 40 and 85 companies (46 in 1991) provide exploration financing and they form the basis of the survey. However, due to unforeseen events, budgets may change significantly during the year. Actual total exploration expenditures exceeded preliminary estimates in 1987 and 1988. A reversal of this trend occurred in 1989 and 1990, after flow-through financing had become less attractive and commodity prices were depressed. The exploration expenditures for 1986 to 1991 from the resident geologists' survey are shown in the table below.

EXPLORATION EXPENDITURES - RESIDENT GEOLOGISTS' SURVEY

	1986	1987 ^l	1987 ^f	1988 ^l	1988 ^f	1989 ^l	1989 ^f	1990 ^l	1990 ^f	1991 ^l
	(\$ millions)									
Precious metals	19	34	48	55	55	32	22	13	11	6
Base metals	2	2	3	3	6	5	7	7	7	6
Uranium	22	18	18	44a	40a	47a	46a	43a	37a	38a
Other	-	-	-	-	-	-	2	2	2	3
Total	43	54	69	102	101	84	77	65	57	53

a Includes underground development at Cigar Lake and Midwest Lake uranium test mines.

^l Intention; ^f final; - Nil.

The marked downturn in mineral exploration expenditures in Saskatchewan since 1988 is consistent with the national trend. In the past few years junior companies have found it increasingly difficult to raise exploration and development capital. As a result, the trend is towards more company-financed explorations from the major corporations.

Diamond exploration continues into its third year. About 80 companies and individuals hold claims under disposition in southern Saskatchewan, mainly in a belt extending eastwards from Prince Albert. The potential for discovering economic diamond deposits is presently a matter of speculation, although the high degree of interest coupled with encouraging exploration results could hasten such a discovery.

Overall, mineral exploration expenditures in Saskatchewan are expected to continue to fall. The 1991 estimate is \$48.0 million lower than the peak expenditures of \$101.0 million in 1988, equivalent to a drop of 47 percent.

4.9

Alberta

Non-petroleum mineral exploration expenditures are expected to decline slightly in 1991. Exploration expenditures are forecast to drop to \$7.1 million, down from an estimated \$7.6 million for 1990. Most of this spending continues to be focused on coal exploration. The number of coal exploration drillholes is forecast to be 876 for 1991 compared to 723 in 1990 and 589 in 1989.

In 1990, over three quarters of Alberta's non-petroleum exploration spending was directed to coal. Uranium was next, attracting just under 20 percent of total mining exploration dollars. The remainder represented modest expenditures on precious metals, nonmetals and structural materials. In 1990, mineral rights were granted in northwest Alberta. Exploration permits were issued covering 780 000 hectares. The value of the assessment work is anticipated to be about \$8 million, of which \$1 million was spent in 1990.

The sluggish performance of the mining industry within an economy slowed by the recession has made financing generally more difficult. Nor have the unique features of flow-through share financing noticeably enhanced the ability of the industry to raise capital using this vehicle. In 1990 flow-through share financing in Alberta continued to decline to about \$75-\$80 million from about \$120 million in 1989. Little of this applied to the mining industry. In 1991, flow-through financing is expected to be about one half of 1990 levels.

4.10

British Columbia

Mineral claim staking increased slightly from the previous year's level with 98 258 new mineral units recorded in 1990, as compared to 97 328 units in 1989 and 87 285 units in 1988. Diamond drilling activity increased from 683 000 metres in 1988 to 717 000 metres in 1989. Total 1990 exploration expenditures, based upon preliminary federal government surveys, are estimated at \$226 million, up by over 21 percent from the final 1989 total of \$186 million.

New exploration discoveries were few, since most of the exploration activity was concentrated near existing "hot spots" such as the Stewart-Iskut River area including Eskay Creek, and the northern Quesnel area, including Mount Milligan.

DISTRIBUTION OF EXPLORATION EXPENDITURES IN BRITISH COLUMBIA BY COMMODITY SOUGHT

	1986	1987	1988	1989
	(\$000)			
Precious metals	36 793	15 126	161 992	116 166
Base metals	8 623	114 952	22 633	27 610
Iron	0	0	0	5
Uranium	0	383	0	0
Other metals	942	1 060	1 896	1 244
Nonmetals	4 895	3 753	580	961
Coal	9 261	4 967	4 914	2 531
Commodity not specified	2 626	2 311	4 756	1 215
Total	63 140	142 552	196 771	149 732

Note: Exploration does not include extensions to deposits already being mined or committed to production. Field exploration costs only. Overhead not included.

The search for rich precious and base-metal deposits and for bulk mineable base-precious-metal deposits, particularly copper-gold, dominated industry activity. Major companies accounted for a large share of the year's expenditures as the junior exploration companies and prospectors, the leading mine finders in the province, had to curtail their activities as they adjusted to the end of flow-through financing. The province's Prospectors Assistance Program was curtailed in 1991, which could have a further impact on prospector activity in 1991 and beyond.

Geddes Resources continued exploration at the huge Windy Craggy copper-gold deposit in the northwest corner of the province and discovered a new copper zone.

Cominco Ltd. and Redfern Resources Ltd. met with significant success, highlighted by a spectacular 50 metre intersection at the Tulsequah Chief massive sulphide deposit.

Cominco Ltd. and Prime Resources Group Inc. brought into production the \$65 million Snip gold deposit.

Corona Corporation and Prime Resources Group Inc. continued with significant progress at the rich Eskay Creek gold-silver base-metal deposit, highlighted in August by a spectacular intersection of the 21B zone in the decline.

Placer Dome Inc. acquired control of the giant Mount Milligan copper-gold deposit in November and, after further drilling, proceeded with a feasibility study.

Imperial Metals Corporation and Corona Corporation completed a favourable feasibility study for the Mt. Polley copper-gold deposit and concluded that this \$131.5 million project would have a payback period of 3.6 years.

Curragh Resources Incorporated and Asturiana de Zinc (Spain) are proposing to develop the Stronsay (formerly named Cirque) lead-zinc deposit in northeast British Columbia.

Crowsnest Resources Limited continued its investigation of a potential new 800 000 tonne per year thermal coal mine at Telkwa, near Smithers, British Columbia; however, this project has again become dormant.

Fording Coal Limited received approval-in-principle for the Henretta Dragline extension at the Elkford mine in southeast British Columbia.

All major projects, such as Windy Craggy, Eskay Creek, Mt. Milligan and Stronsay are at Stage I of the Mine Development Review Process. Mount Polley is in Stage II of the review process and is expected to receive approval-in-principle before the end of 1991.

4.11 Northwest Territories

In 1990 the Northwest Territories ranked fifth in the value of Canada's metallic mineral production, supplying 5.9 percent of all metallic minerals. Metal shipments were valued at \$881 million, a 9.1 percent increase from \$805 million in 1988. Data for 1989 show mining accounted for 36 percent of the Northwest Territories Gross Domestic Product. The Northwest Territories, in 1990, produced 24.7 percent of Canada's zinc, 17 percent of its lead, 9.1 percent of its gold, 16.6 percent of its cadmium and 2.1 percent of its silver.

Approximately 60 percent of the estimated 2200 jobs in the Northwest Territories mining sector are held by Territorial residents. Participation by native northerners has increased to about 12 percent of jobs, due to the efforts of both industry and communities. The mining sector paid \$123 million or 13 percent of all salaries in the Northwest Territories during 1989.

Changes to flow-through share laws and the Canadian Exploration Incentive Program (CEIP) reduced the attractiveness of exploration investments. These changes, combined with lower gold prices, the strong Canadian dollar and high interest rates, resulted in a decline in the amount of exploration capital available. Mineral exploration in the Northwest Territories fell from \$112 million in 1988 to \$55 million in 1989 and \$38 million in 1990. The total number of claims in good standing has decreased since the early 1980s. In 1990, mineral claims covering 355 345 hectares were recorded while 563 548 hectares lapsed. Claims in good standing covered 2 947 349 hectares compared with 4 256 528 hectares in 1980. The Northwest Territories share of total exploration investment in 1988, 1989 and 1990 remained constant at approximately 5.2 percent of the total exploration investment in Canada.

Advanced exploration properties include:

George Lake Joint Venture - (Homestake Mining Company Ltd. and Kerr-McGee Corporation) explored for gold, 525 kilometres northeast of Yellowknife. The company plans 24 000 metres of additional diamond drilling during 1991.

BHP-Utah Mines Ltd. - continued work on the Ulu gold property, 550 kilometres north of Yellowknife. The company plans 15 000 metres of diamond drilling in 1991.

Athabaska Gold Res. and Chevron Minerals Ltd. - have defined 557 000 tonnes grading 12.3 grams per tonne gold on the Nicholas Lake deposit 75 kilometres north of Yellowknife.

During 1990, the NorthWest Gold Corp. commenced production at the Colomac mine, a large open-pit gold mine 200 kilometres north of Yellowknife (the mine went into care and maintenance in July 1991). The Giant mine in Yellowknife was purchased by Royal Oak Resources. The Nerco CON mine, also in Yellowknife, refurbished one of their shafts and expanded their mill capacity. The company plans to build an autoclave circuit adjacent to the existing mill, at a cost of \$19.4 million. The pressure oxidation process will recover gold from pre-existing mining waste material and allow processing of refractory ore. The Lupin mine, 400 kilometres northeast of Yellowknife invested in internal infrastructure and development to access deeper reserves. Development on the Kiggavik property, 100 kilometres west of Baker Lake, is delayed pending the completion of the federal environmental review.

4.12 Yukon

In 1991, exploration spending by junior mining companies is expected to remain at a very low level. This can be attributed to the continuing difficulty that such companies are experiencing in raising risk capital, which is the result of depressed share prices, high interest rates, declines in gold and silver prices, and the cancellation of both the earned depletion allowance and the Canadian Exploration Incentive Program.

There has recently been a revival of interest by major companies in base-metal exploration, and expenditures on such projects are expected to be at or possibly slightly above last year's level. Curragh Resources Inc.'s Mount Hundera project is expected to begin shipping concentrate by the end of July 1991.

There is currently a sense of uncertainty in the industry concerning legislative and regulatory changes that are currently being proposed, most particularly in connection with the settlement of the Yukon Indian land claim. However, prospecting activity by individuals remains at a high level, and there is no evidence that any junior or major company has modified its exploration plans as a result of this uncertainty.

A survey completed by DIAND late in 1990 indicated that actual expenditures in the Yukon in 1990 were only about \$11 million. Another survey completed by the Yukon Chamber of Mines in August 1991 indicated that expenditures in 1991 may be somewhat higher at \$14-\$15 million. These figures are much lower than the preliminary estimate for 1990 and forecast for 1991 reported in Table 3a, which suggests that actual spending has dropped considerably below the figures indicated by the "intentions survey."

SECTION C. HISTORICAL PERSPECTIVE ON MINERAL EXPLORATION ACTIVITY IN RECENT YEARS

5.1 Introduction

This section presents an overview of various aspects of mineral exploration in recent years. Patterns of exploration spending are shown by region, by commodity sought and by type of company. The 1990 and 1991 levels of exploration activity are described on a preliminary and forecast basis respectively. The data applicable to these two years were collected between December 1990 and March 1991.

5.2 Exploration Expenditures by Region

Tables 3a, 3b and 4 are based on the federal-provincial survey of mining and exploration companies.

Table 3a shows current dollar expenditures on mineral exploration in Canada, by province, for the 1985 to 1991 period. Table 3b reports the same information, but in 1990 dollars. The figures for "fieldwork" do not include overhead expenses. Table 4 presents these data as percentages.

Until 1989, the most active exploration areas were Ontario and Quebec, which, in 1988, jointly accounted for 58 percent of total Canadian exploration spending. In 1988 and 1989 exploration expenditures in Ontario exceeded those in Quebec for the first time since 1977. Exploration spending in British Columbia as a percentage of Canadian exploration has risen rapidly in the second half of the 1980s and, in 1989, was at levels comparable to exploration expenditures in Quebec. In 1990 and 1991 exploration spending in British Columbia is expected to exceed spending in Quebec and Ontario for the first time since 1981. Indications are that, in 1990, exploration expenditures in Ontario declined by 35 percent relative to 1989, leaving Ontario in third place. Ontario is likely to remain in third place in 1991. Total national exploration expenditures are expected to decrease by 9 percent in 1990 relative to 1989 and by another 14 percent in 1991.

In 1989, exploration spending relative to 1988 was down in all provinces except Manitoba, although the decline in Alberta that year was insignificant. In 1990, preliminary totals indicate that exploration spending was up relative to 1989 in British Columbia, the Yukon, Alberta and New Brunswick and down in all other provinces, most notably in Nova Scotia, where 1990 exploration expenditures were down by 60 percent relative to 1989. Exploration intentions for 1991 indicate that increased expenditures are expected relative to those in 1990, in the Yukon, the Northwest Territories, New Brunswick and Nova Scotia.

5.3 Exploration Expenditures by Type of Company

Figure 8a depicts field exploration expenditures by type of company for the years 1985-89. Comparable field expenditures are not yet available for 1990 and 1991 so these years are not shown in Figure 8a. Total exploration expenditures (fieldwork plus overhead) for the years 1989, 1990 preliminary and 1991 spending intentions are portrayed in Figure 8b. Comparable fieldwork plus overhead totals data are not available for the years 1985-89 so those years cannot be shown in Figure 8b.

TABLE 3A. MINERAL EXPLORATION EXPENDITURES IN CANADA, BY PROVINCE, 1985-91

Province	Field Work Only				Total Exploration ¹		
	1985	1986	1987	1988	1989	1990 ^{pe}	1991 ^f
	(Current \$ Millions)						
Newfoundland	11.9	12.3	27.7	37.7	36.2	23.6	16.8
Nova Scotia	7.8	17.2	41.6	46.7	21.4	8.7	9.2
New Brunswick	12.1	10.8	9.1	13.8	13.6	18.5	21.7
Quebec	135.2	241.4	415.5	328.2	185.0	175.7	150.7
Ontario	93.2	136.8	308.1	343.6	217.8	141.2	123.8
Manitoba	33.7	26.3	40.0	30.0	37.0	36.6	35.0
Saskatchewan	39.4	36.8	63.5	61.1	63.3	57.6	51.3
Alberta	14.7	3.0	2.5	4.3	6.2	7.6	7.1
British Columbia	73.0	63.1	142.6	196.8	186.6	226.3	166.8
Yukon Territory	22.7	27.9	29.0	38.6	15.1	22.1	27.0
Northwest Territories	46.8	35.8	59.0	66.5	45.7	33.2	36.7
Total Field Work (Excluding Overhead)	490.5	611.4	1 138.6	1 167.3	703.5	na	na
Total Exploration (Including Overhead)	605.8	723.3	1 300.0	1 350.0	827.9	751.2	646.2

Sources: Federal-provincial survey of mining and exploration companies for 1985-89; the 1990 preliminary estimate and 1991 forecast were derived from federal-provincial surveys co-ordinated by Statistics Canada and EMR.

¹ "Total Exploration" includes related overhead expenditures; for the years 1985-88, totals with overhead were calculated by multiplying the federal-provincial field expenditures by the ratio total/field from Statistics Canada.

^{pe} Preliminary estimate; ^f Forecast; na Not available.

Figures may not add to totals due to rounding.

TABLE 3B. MINERAL EXPLORATION EXPENDITURES IN CANADA, BY PROVINCE, 1985-91

Province	Field Work Only				Total Exploration ¹		
	1985	1986	1987	1988	1989	1990 ^{pe}	1991 ^f
	(1990 \$ Millions)						
Newfoundland	14.4	14.6	31.3	40.7	37.3	23.6	16.2
Nova Scotia	9.5	20.4	47.0	50.4	22.0	8.7	8.9
New Brunswick	14.7	12.8	10.3	14.9	14.0	18.5	20.9
Quebec	163.9	285.7	469.5	354.0	190.5	175.7	145.2
Ontario	113.0	161.9	348.1	370.7	224.3	141.2	119.3
Manitoba	40.8	31.1	45.2	32.4	38.1	36.6	33.7
Saskatchewan	47.8	43.6	71.8	65.9	65.2	57.6	49.4
Alberta	17.8	3.6	2.8	4.6	6.4	7.6	6.8
British Columbia	88.5	74.7	161.1	212.3	192.2	226.3	160.7
Yukon Territory	27.5	33.0	32.8	41.6	15.6	22.1	26.0
Northwest Territories	56.7	42.4	66.7	71.7	47.1	33.2	35.4
Total Field Work							
(Excluding Overhead)	594.5	723.6	1 286.6	1 259.2	724.5	na	na
Total Exploration							
(Including Overhead)	734.3	856.0	1 468.9	1 456.3	852.6	751.2	622.5

Sources: Federal-provincial survey of mining and exploration companies for 1985-89; the 1990 preliminary estimate and 1991 forecast were derived from federal-provincial surveys co-ordinated by Statistics Canada and EMR.

¹ "Total Exploration" includes related overhead expenditures; for the years 1985-88, totals with overhead were calculated by multiplying the federal-provincial field expenditures by the ratio total/field from Statistics Canada.

^{pe} Preliminary estimate; ^f Forecast; na Not available.

Figures may not add to totals due to rounding.

TABLE 4. MINERAL EXPLORATION EXPENDITURES IN CANADA, BY PROVINCE, 1985-91

Province	Field Work					Total	
	1985	1986	1987	1988	1989	1990 ^{pe}	1991 ^f
	(Percentage distribution)						
Newfoundland	2.4	2.0	2.4	3.2	4.4	3.1	2.6
Nova Scotia	1.6	2.8	3.7	4.0	2.6	1.2	1.4
New Brunswick	2.5	1.8	0.8	1.2	1.6	2.5	3.4
Quebec	27.6	39.5	36.5	28.1	22.3	23.4	23.3
Ontario	19.0	22.4	27.1	29.4	26.3	18.8	19.2
Manitoba	6.9	4.3	3.5	2.6	4.5	4.9	5.4
Saskatchewan	8.0	6.0	5.6	5.2	7.6	7.7	7.9
Alberta	3.0	0.5	0.2	0.4	0.8	1.0	1.1
British Columbia	14.9	10.3	12.5	16.9	22.5	30.1	25.8
Yukon Territory	4.6	4.6	2.5	3.3	1.8	2.9	4.2
Northwest Territories	9.5	5.9	5.2	5.7	5.5	4.4	5.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Federal-provincial survey of mining and exploration companies for 1985-89; the 1990 preliminary estimate and 1991 forecast were derived from federal-provincial surveys co-ordinated by Statistics Canada and EMR.

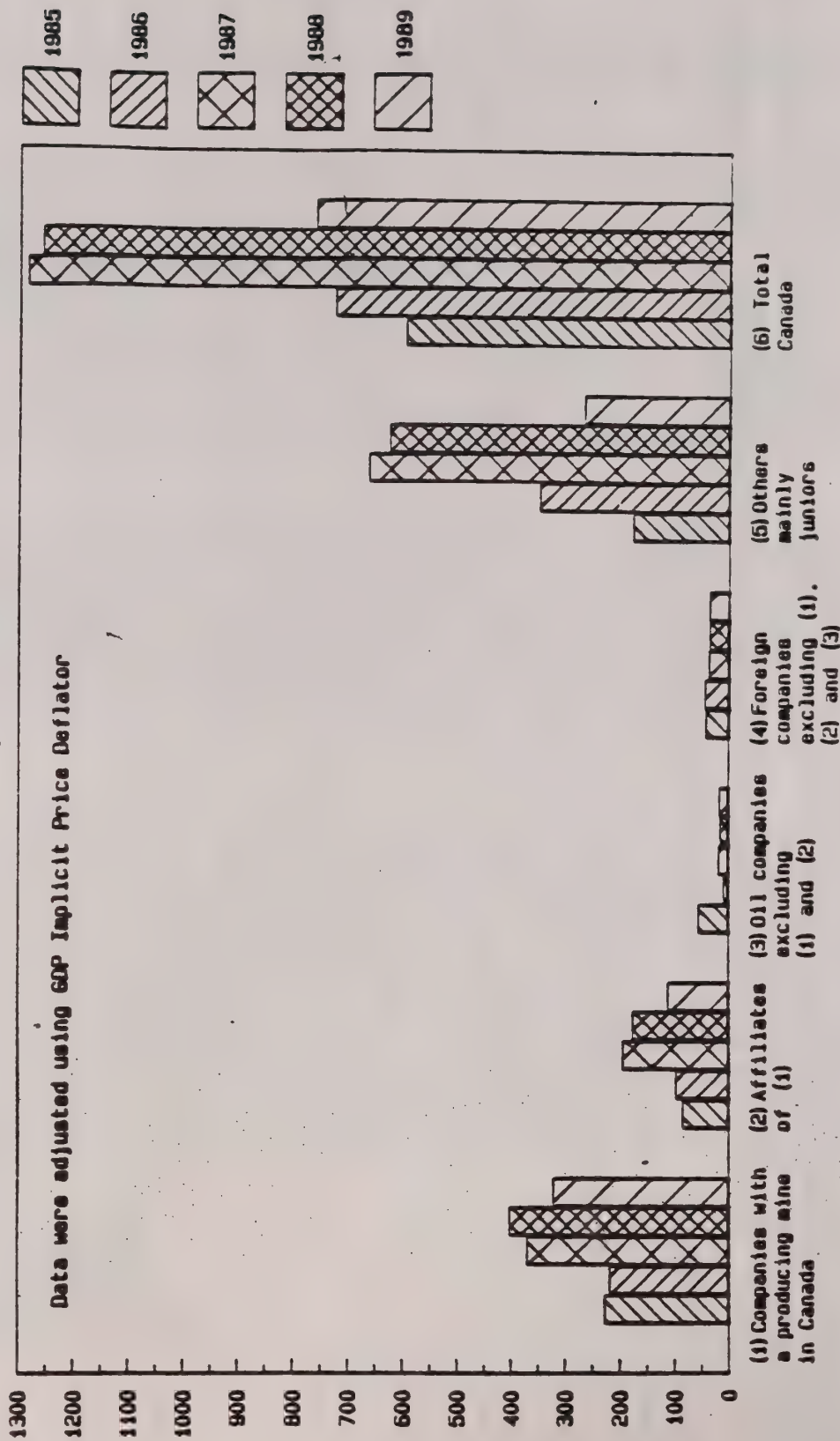
^{pe} Preliminary estimate; ^f Forecast.

Note: The percentages from 1985-88 are calculated on field work only, but those for 1989-91 are based on total expenditures, which include related overhead.

Figure 8a

CANADIAN EXPLORATION EXPENDITURES (FIELD WORK ONLY) BY TYPE OF COMPANY 1985 TO 1989

Millions of 1990 dollars

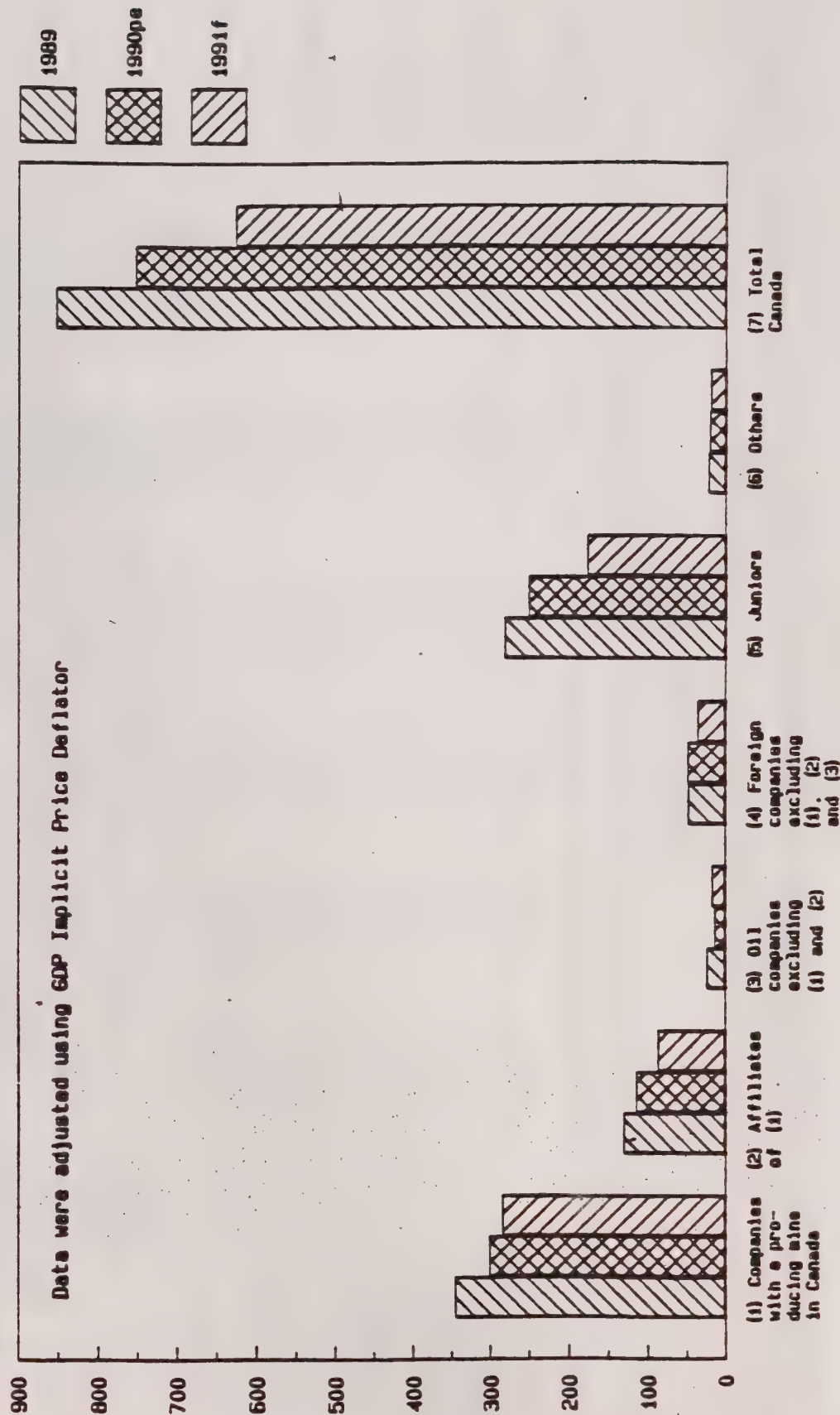


Source: Federal-provincial survey of mining and exploration companies.
Note: Overhead expenditures are not included.

Figure 8b

CANADIAN EXPLORATION EXPENDITURES (FIELD WORK PLUS OVERHEAD) BY TYPE OF COMPANY, 1989 WITH 1990 PRELIMINARY ESTIMATE AND 1991 FORECAST

Millions of 1990 dollars



Source: Federal-provincial survey of mining and exploration companies for 1989.
 pe Preliminary estimate; f Forecast.

Note: Overhead expenditures are included.

Over the period 1985-91, non-petroleum mineral exploration by oil companies declined in constant dollar terms by more than 60 percent, while that by foreign companies declined by more than 70 percent.

Exploration by producing companies and their affiliates peaked in 1987/88 and appears to have declined moderately since then. This decline may actually portray lower contributions by junior companies to joint venture projects operated by senior companies. Expenditures of this nature are reported in total by project operators (mostly senior companies).

Figure 9 portrays Canadian current dollar exploration expenditures for the period 1983-91. Figure 10 portrays Canadian exploration expenditures in 1990 dollars for the period 1969-91. From 1983 to 1987, exploration expenditures by junior companies increased almost tenfold, from about \$71 million in 1983 to almost \$700 million in 1987. Exploration by junior companies, which in 1983 accounted for about 15 percent of total exploration expenditures, increased to more than two thirds of the total. In 1988, expenditures by junior companies began to decline. This decline appears to have continued through 1989, 1990 and 1991.

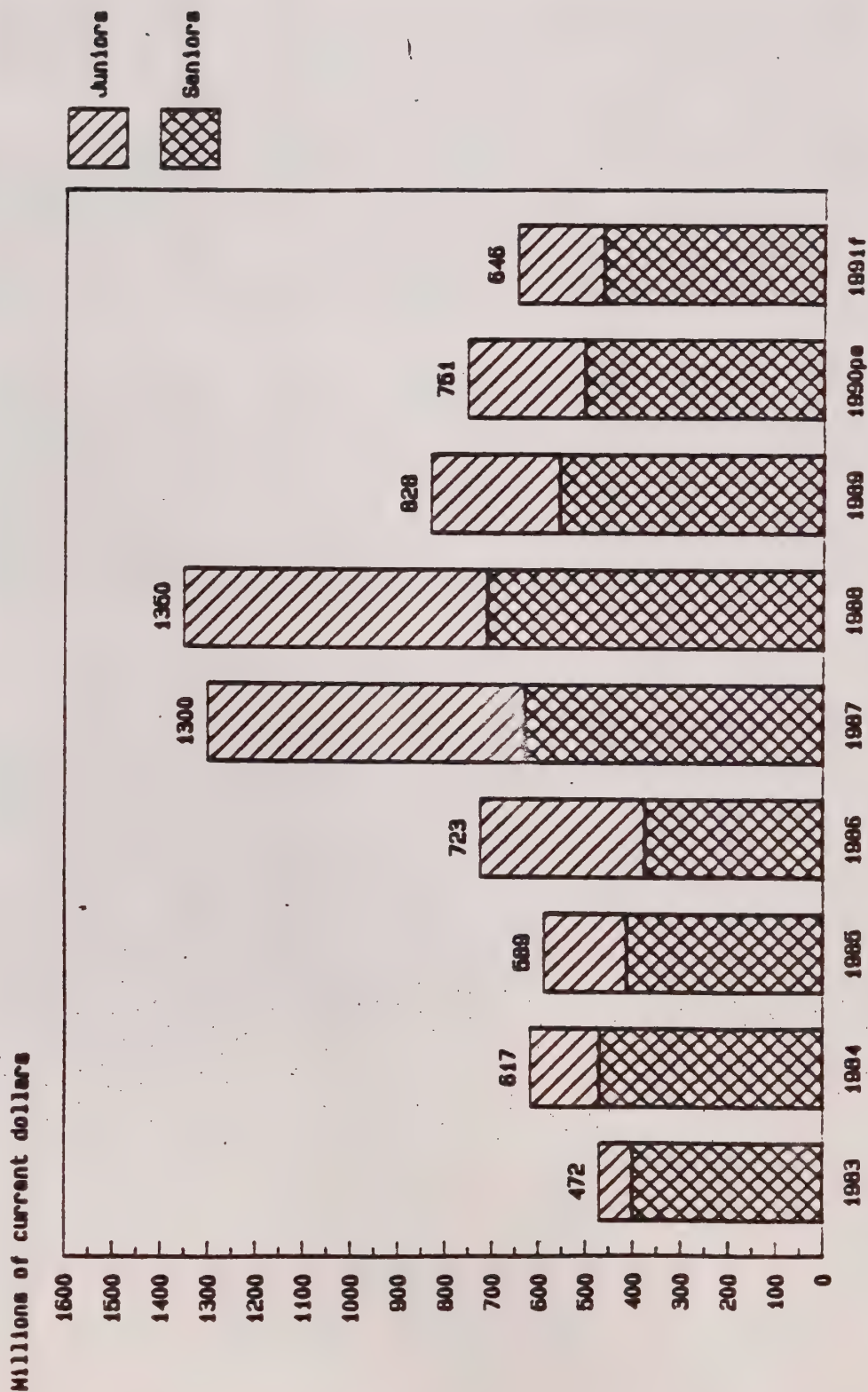
The fact that junior companies provided about two thirds of total Canadian exploration spending in 1987 and 1988 is not apparent in the bar graphs and may be explained as follows. From 1984 on, a significant amount of exploration money was provided by junior companies for joint venture exploration projects operated by senior companies. As Canadian exploration expenditure surveys ask that exploration spending be reported by project operators, and because senior companies generally did not contribute large amounts of money to projects operated by junior companies, the exploration surveys have tended to overstate the contributions of the seniors and have understated those of the juniors to Canadian exploration spending during the mid-1980s.

5.4 Exploration Expenditures by Type of Commodity Sought

Figure 11 shows total Canadian exploration expenditures by commodity or commodity group for the period 1985-89 and gives an indication of the changing commodity emphasis of exploration. In 1988, precious metals accounted for 82 percent of total exploration spending in Canada (an estimated 95 percent of this was directed at gold), while base metals accounted for 13 percent, uranium 2 percent and all other mineral commodities, including coal 3 percent. In 1989, there was a significant drop in the percentage of national expenditures allocated to precious metals and an increase in the percentage allocated to base metals, that is, precious metals 67 percent and base metals 23 percent. In current dollars, exploration expenditures for precious metals in 1989 were only half those of 1988, while exploration expenditures for base metals remained about the same. In percentage terms in 1989, uranium exploration accounted for 4 percent of Canadian exploration spending and the other mineral commodities, including coal, accounted for 8 percent.

Figure 9

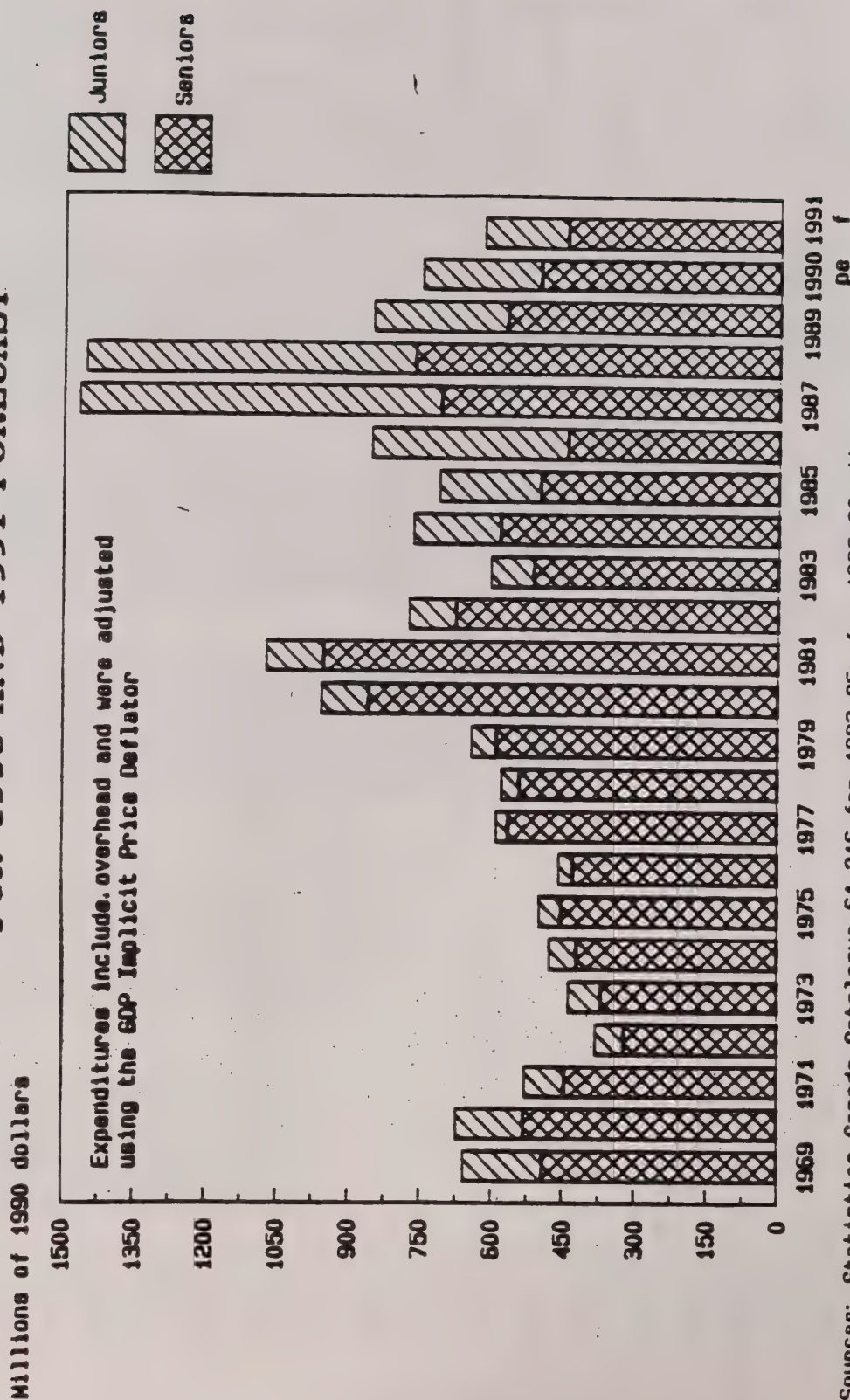
TOTAL EXPLORATION EXPENDITURES 1983 TO 1989 WITH 1990 PRELIMINARY ESTIMATE AND 1991 FORECAST



Sources: For 1983-85, Statistics Canada (Catalogue 61-216); for 1986-88, the federal-provincial field expenditures were multiplied by the ratio total/field from Statistics Canada. The 1990 preliminary estimate and 1991 forecast were derived from federal-provincial surveys co-ordinated by Statistics Canada and EWR. 1990 Preliminary estimate; 1991 Forecast.

Figure 10

TOTAL EXPLORATION EXPENDITURES 1969 TO 1989 JUNIOR/SENIOR SPLIT WITH PRELIMINARY ESTIMATE FOR 1990 AND 1991 FORECAST



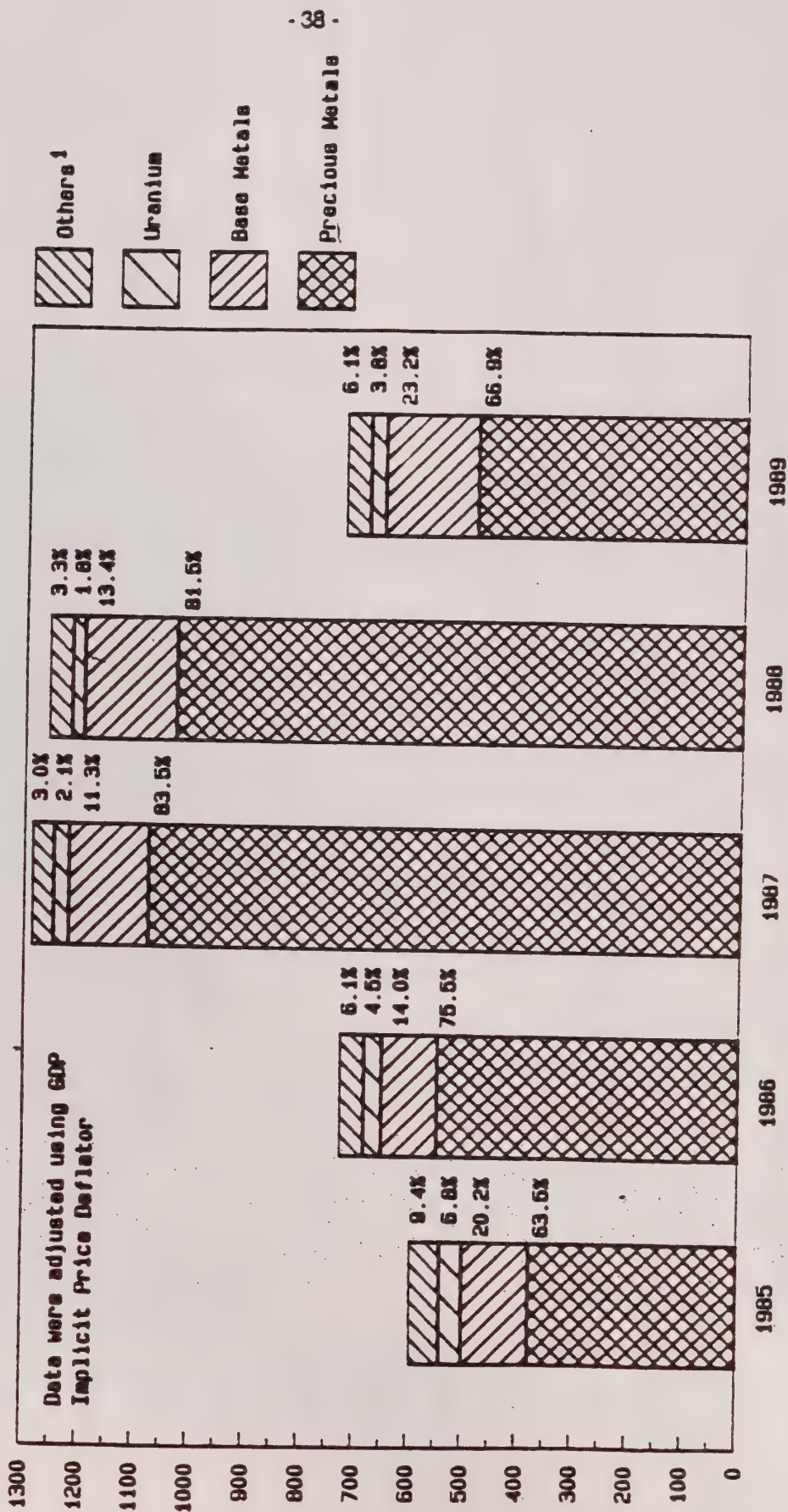
Sources: Statistics Canada Catalogue 61-216 for 1983-85; for 1986-88, the federal-provincial field expenditures were multiplied by the ratio total/field from Statistics Canada. The 1990 preliminary estimate and 1991 forecast were derived from federal-provincial surveys co-ordinated by Statistics Canada and EWR.

pe Preliminary estimate; f Forecast.

Figure 11

CANADIAN EXPLORATION EXPENDITURES DISTRIBUTION BY COMMODITY SOUGHT 1985 to 1989

Millions of 1990 dollars



Source: Federal-provincial survey of mining and exploration companies.
Note: Overhead expenditures are not included.

1 Others include ferrous metals, other metals, nonmetals (including coal), and "not specified".

SECTION D. HISTORICAL PERSPECTIVE ON FLOW-THROUGH SHARE FINANCING ACTIVITY 1983-91

The evolution of flow-through shares as a source of financing for exploration is shown in Figure 12. Funds raised by flow-through shares peaked at \$1183 million in 1987.

The proportion of total exploration expenditures accounted for by flow-through share financing increased from about 7 percent in 1983 to more than 90 percent in 1986 and 1987. In 1988, however, the level of flow-through financing of mineral exploration declined to approximately 60 percent of total spending, mainly as a result of decreased participation by senior companies in the flow-through share market. The downward trend has continued in 1989 and 1990, and will continue in 1991 (Table 5).

It should be noted that exploration expenditures and amounts financed by flow-through shares cannot realistically be directly compared. Exploration data are compiled on a calendar-year basis, whereas the amount of flow-through share funds raised is compiled on a taxation-year basis. Since 1986, this latter amount has included money raised for spending in the following January and February, the so-called "look-back period." For example, some of the money raised in 1987 would have been spent in early 1988.

The increase in flow-through share funding has witnessed a concurrent increase in the proportion of total exploration by junior mining companies. It is the juniors who made the greatest use of the flow-through share mechanism in 1987 and 1988. It is estimated that juniors accounted for close to 80 percent of the total amount raised by flow-through shares in 1988. As was pointed out earlier in this report, even though juniors continued to account for by far the greatest part of flow-through share funded exploration, it was they who felt the brunt of the reduced level of flow-through share financing since 1989.

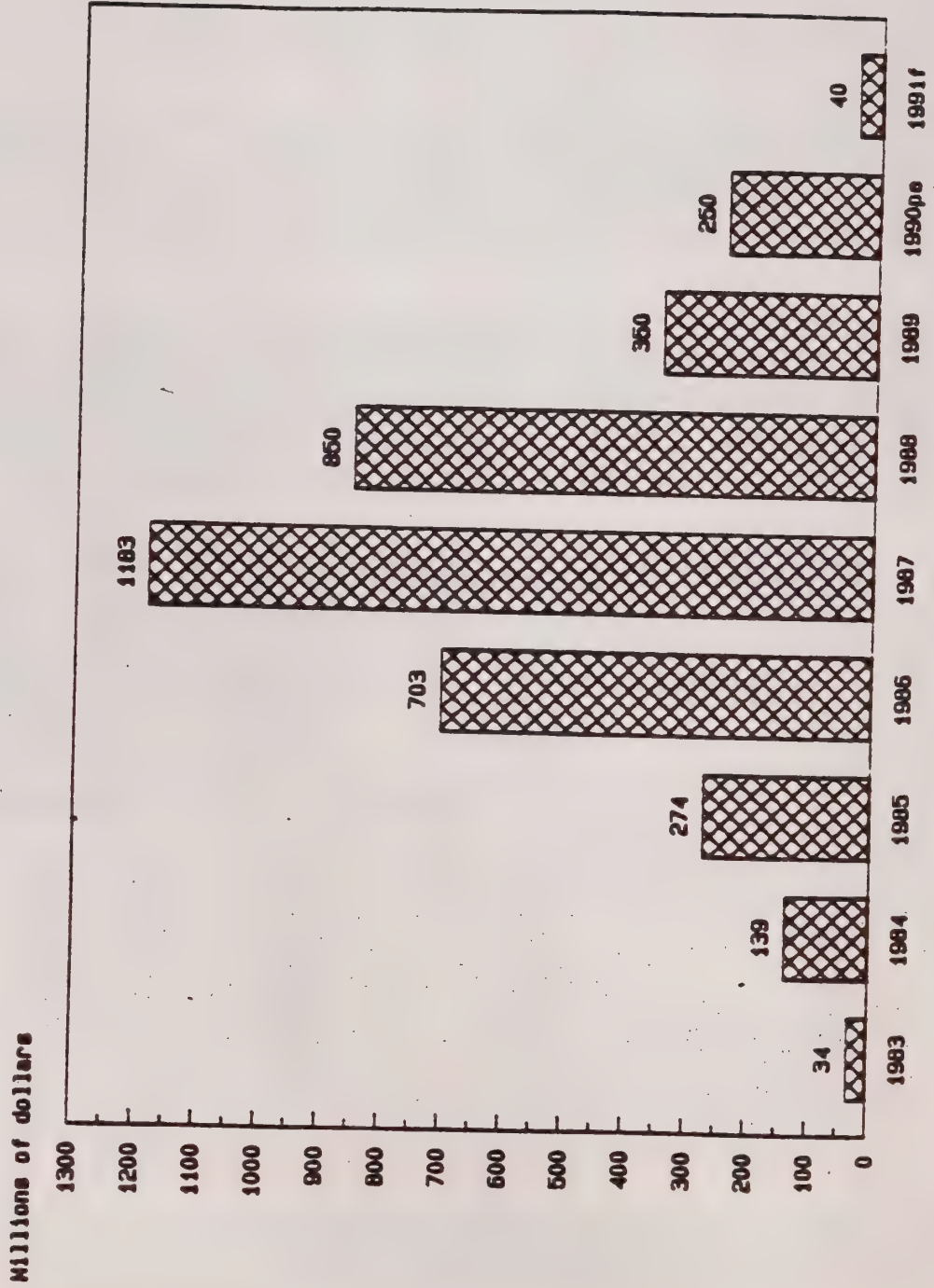
TABLE 5. RATIO OF FLOW-THROUGH FINANCING TO TOTAL EXPLORATION EXPENDITURES, 1983-91

Year	Total Exploration Expenditures	Flow-Through Share Financing	Percentage Flow-Through Financing to Total Exploration Expenditures
	(\$ million)		(percent)
1983	472	34	7
1984	617	139	23
1985	589	274	47
1986	698	703	100
1987	1 300	1 183	95
1988	1 350	850	63
1989	828	350	42
1990 ^p	750	250	33
1991 ^f	530-580	40	7

^p Preliminary; ^f Forecast.

Beginning in 1986, some of the flow-through funds raised were actually spent in January and February of the subsequent year (the so-called "look back" period). Over the period 1983-90 inclusive, flow-through shares will have provided some 57 percent of total Canadian non-petroleum mineral expenditures.

Figure 12
FLOW-THROUGH SHARE FINANCING LEVELS
1983 TO 1991



Source: Energy, Mines and Resources Canada.
pe Preliminary estimate; f Forecast as of July 1, 1991.

48E CONFÉRENCE ANNUELLE DES MINISTRES DES MINES

Rapport sur les dépenses d'exploration minière
et le financement par actions accréditives

Fédéral

Halifax (Nouvelle-Écosse)
Du 22 au 24 septembre 1991

VEUILLEZ NOTER

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**RAPPORT SUR
LES DÉPENSES D'EXPLORATION MINIÈRE
ET LE FINANCEMENT PAR ACTIONS ACCRÉDITIVES**

PAR LE

GROUPE DE TRAVAIL INTERGOUVERNEMENTAL
SUR L'INDUSTRIE MINÉRALE

PRÉPARÉ POUR LA
CONFÉRENCE DES MINISTRES DES MINES
HALIFAX (NOUVELLE-ÉCOSSE)

Septembre 1991



Energy, Mines and
Resources Canada

Énergie, Mines et
Ressources Canada



AVANT-PROPOS

Le présent rapport a pour but de présenter une vue globale de la situation actuelle des dépenses d'exploration minière et du financement par actions accréditives au Canada. Les données et points de vue apparaissant dans le rapport ont été réunis et approuvés par le Groupe de travail intergouvernemental sur l'industrie minérale.

La rédaction du présent rapport a été coordonnée par le Secteur de la politique minérale du ministère de l'Énergie, des Mines et des Ressources (EMR), qui a préparé les rapports compilés pour les Conférences des ministres des Mines de 1988, 1989 et 1990.

Tout au long du rapport, l'expression «exploration minière» désigne la recherche de métaux, de minéraux non métalliques et de charbon, mais non de sables pétrolifères et bitumineux, de pétrole et de gaz.

SOMMAIRE

Selon les données préliminaires provenant des enquêtes fédérales-provinciales, les dépenses totales d'exploration minière se sont chiffrées à 750 millions de dollars en 1990. Il s'agit d'une baisse légère par rapport aux 828 millions dépensés en 1989 mais considérable comparativement aux niveaux de 1987 et 1988, soit près de 1,3 milliard et 1,35 milliard de dollars respectivement.

Dans l'ensemble, les travaux d'exploration dans les provinces et territoires en 1991 devraient accuser un recul par rapport à 1990 en raison de la diminution du financement par actions accréditatives. EMR estime actuellement que les sommes consacrées à l'exploration en 1991 se situeront probablement entre 530 et 580 millions de dollars.

Selon EMR, les sommes recueillies par actions accréditatives en 1990 auraient été de l'ordre de 250 millions, soit environ 100 millions de moins que les 350 millions réunis en 1989. Toujours selon EMR, le niveau du financement par actions accréditatives chutera aux alentours de 40 millions de dollars en 1991.

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PARTIE A. SITUATION ACTUELLE DE L'EXPLORATION MINIÈRE ET DU FINANCEMENT PAR ACTIONS ACCRÉDITIVES AU CANADA

Le présent document expose la situation actuelle et l'évolution récente relative au financement par actions accréditatives et à l'exploration minière

1. Perspectives du financement par actions accréditatives en 1991

1.1 Introduction

La présente section traite des sommes réunies pour l'exploration grâce aux actions accréditatives. Au cours des dernières années, les petites sociétés ont fait appel aux actions accréditatives pour financer la majeure partie de leurs travaux d'exploration alors que, dans la plupart des cas, les grandes sociétés financent maintenant leurs programmes d'exploration par des moyens autres que les actions accréditatives.

Le financement accreditif représente un indicateur important pour mesurer la place qu'occupent les petites sociétés dans l'ensemble des travaux d'exploration. Étant donné que la plupart des petites sociétés sont publiques et ont besoin de l'approbation des Bourses pour effectuer des placements, les renseignements portant sur leurs activités de financement ont été tirés principalement de publications relatives aux activités boursières ou d'informations obtenues directement auprès des Bourses.

1.2 Situation récente

La montée en flèche du financement par actions accréditatives entre 1985 et 1988 n'aurait probablement pas été possible sans l'entrée en scène des grandes sociétés en commandite. Ces sociétés ont obtenu du succès en raison de l'étendue de leur réseau de distribution et de la diversification du risque. Le tableau 1 illustre la contribution impressionnante apportée par les grandes sociétés en commandite par rapport aux sommes totales réunies par d'actions accréditatives entre 1987 et 1990.

Cependant, en 1991, les grandes sociétés en commandite se sont retirées du marché des actions accréditatives. Au moment de la publication du rapport, aucune ne s'était encore lancée sur le marché accreditif en 1991.

**Tableau 1. Fonds réunis au moyen d'actions
accréditives par les grandes sociétés en
commandite de 1987 à 1990**

	<u>Valeur des émissions vendues</u>			
	1987	1988	1989a	1990a
	(en millions de dollars)			
TAP	28	23	0	0
CMP	239	234	113	89,4
NEF	-	8	0	0
MVP	57	26	0	0
NIM	260	270	49	0
FIRST EX	47	21	0	0
MIDDLEFIELD	29	5,5	5,5	10,9
MINTAX	15	3,5	0	0
Total	675	591	167,5	100,3

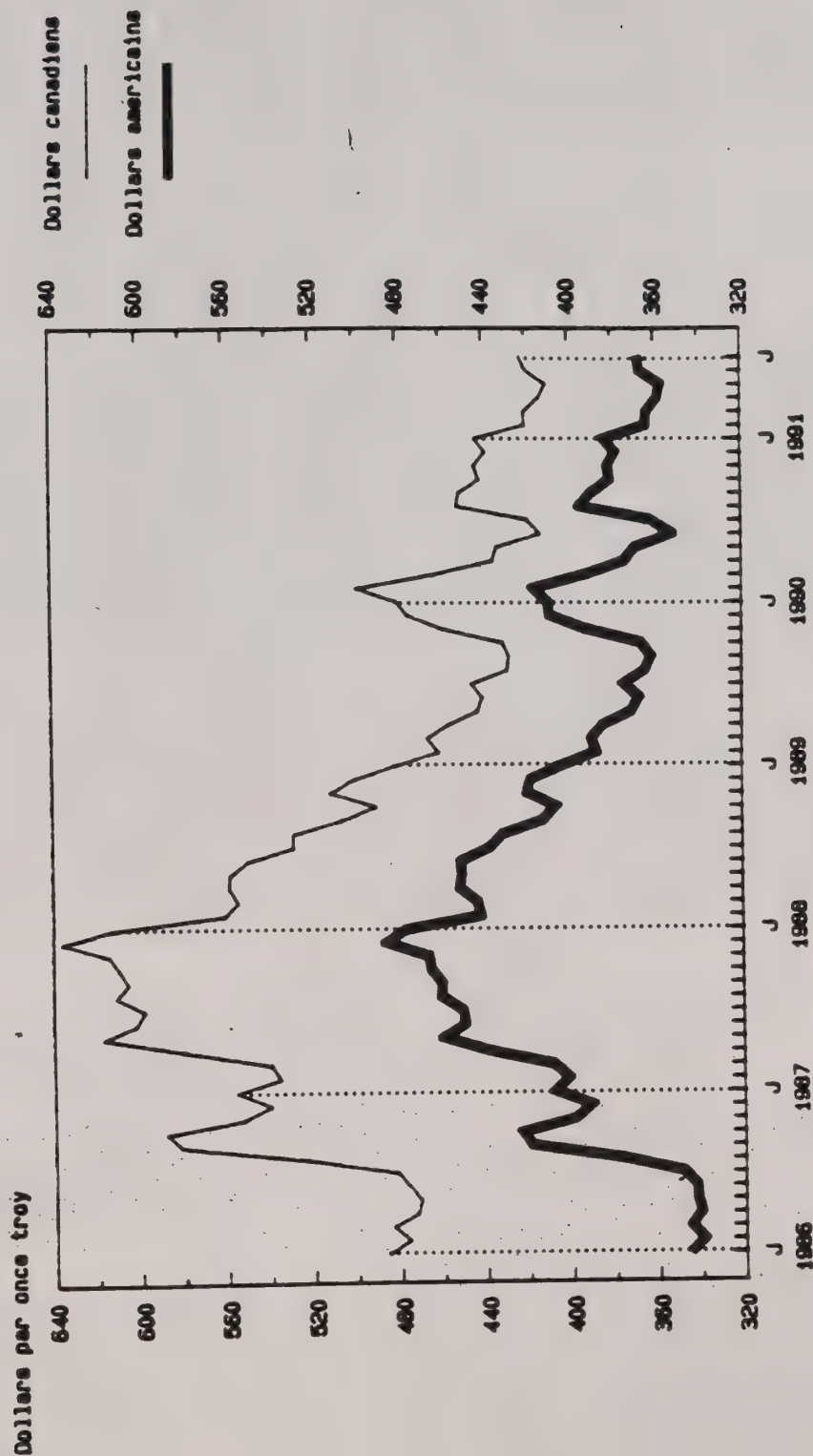
a Les chiffres de 1989 et 1990 ne représentent en général que les fonds destinés à l'exploration minière. Certaines sommes réunies pour la recherche de pétrole et de gaz sont cependant incluses dans les totaux de 1987 et 1988. Les chiffres de 1989 et 1990 comprennent la "majoration", par laquelle les sociétés conservent la subvention versée par le PSEMC et la dépensent par la suite.

1.3 Données sur les Bourses

Au cours du premier semestre de 1991, les investisseurs ont commencé à reprendre confiance dans les marchés boursiers et ont consacré des sommes assez considérables aux nouvelles émissions d'actions de bonne qualité. Il ne fait aucun doute que cette situation augure bien pour les grandes sociétés; cependant, cette bonne fortune ne s'est pas répercutée sur les petites sociétés.

Figure 1

PRIX MENSUEL MOYEN DE L'OR JANVIER 1986 À JUILLET 1991



Sources: Metals Week at Handy & Harman.

Le marché boursier demeure léthargique pour les titres des petites sociétés. L'indice de la Bourse de Vancouver -- s'il est pris comme indicateur de l'intérêt des investisseurs à l'égard des actions des petites sociétés -- a culminé à 2 015 points en mai 1987, année même où le niveau de financement accréditif a atteint son sommet. Cet indice a reculé de 33 % depuis le milieu de 1990 et, en janvier 1991, est tombé sous la barre des 500 points pour la première fois depuis ses huit ans d'existence. Il s'agit d'un prolongement de la tendance à la baisse qui a suivi l'effondrement boursier de 1987. Le 1^{er} juillet 1991, l'indice s'élevait à 580, une très légère remontée par rapport à son point le plus bas.

Les statistiques fournies par la Bourse de Vancouver montrent que quelque 7,3 millions de dollars ont été réunis grâce à 29 placements privés au cours des six premiers mois de 1991. De ces 7,3 millions, 800 000 dollars seront consacrés à la recherche de pétrole et de gaz, ce qui laisse 6,5 millions à l'exploration minière. Ceci représente une moyenne de 250 000 \$ par semaine. Si cette tendance se poursuit, 13 millions de dollars seront réunis à la Bourse de Vancouver en 1991 pour le secteur minier.

Les données provenant de la Bourse de Montréal et de la Bourse de Toronto révèlent qu'exception faite des sommes réunies par des sociétés inscrites à plusieurs Bourses, quelque 4 millions de dollars ont été recueillis en actions accréditives à ces deux Bourses, dont 3,5 pour l'exploration minière. Si la tendance se poursuit, 7 millions de dollars seront réunis à la Bourse de Montréal et à la Bourse de Toronto en 1991.

1.4 Perspectives

Les divers montants de financement accréditif réunis pour l'exploration minière à ces trois Bourses s'élevaient à 10 millions de dollars au 1^{er} juillet 1991. En supposant qu'un montant égal sera recueilli au cours du second semestre de 1991, nous arrivons à la conclusion qu'un financement total de 20 millions de dollars en actions accréditives sera disponible pour toute l'année.

Cependant, le recours traditionnel de fin d'année aux actions accréditives comme abri fiscal pourrait accroître le montant total de fonds à la disposition des petites sociétés. En fait, des annonces récentes révèlent que le financement accréditif en juillet s'est chiffré à plus de 3 millions. Même s'il est difficile

à ce moment-ci de prévoir le montant qui sera réuni pour l'ensemble de l'année, EMR est d'avis que 40 millions constituent une estimation raisonnable pour 1991, étant donné que les constatations des années passées démontrent que les fonds réunis au cours du second semestre sont beaucoup plus élevés qu'au cours du premier semestre.

2. Perspectives de l'exploration en 1991

2.1 Introduction

La présente partie traite du niveau prévu de l'ensemble de l'exploration minière plutôt que de son financement. Étant donné qu'il s'agit de projections, les sources statistiques courantes sont assorties d'autres sources. Tout d'abord, la présente partie fait état des résultats de l'«enquête sur les intentions» fédérale-provinciale pour 1991 coordonnée par Statistique Canada et EMR. Bien que ce soit le dernier sondage «complet» disponible, il comporte une grave lacune. Puisque ces intentions ont été rassemblées entre décembre 1990 et mars 1991, la valeur de cette enquête annuelle est quelque peu douteuse parce que plusieurs mois se sont déjà écoulés depuis.

Une autre source d'information provient d'un modèle économétrique mis au point par le Secteur de la politique minérale et servant à prévoir le montant total d'exploration et le montant d'exploration des grandes sociétés. Ce modèle repose sur l'importante relation statistique qui existe entre les travaux d'exploration et le prix des métaux.

Troisièmement, les niveaux récents de forage au diamant sont examinés dans le but de donner une idée de la tendance réelle des travaux d'exploration.

2.2 Enquête d'EMR et de Statistique Canada sur les intentions de dépenses d'exploration pour 1991

Méthode

Le 31 octobre 1990, Statistique Canada a envoyé 350 questionnaires aux sociétés minières productrices. EMR s'est chargé de la cueillette des données auprès des sociétés non productrices et a ainsi envoyé près de 3 300 questionnaires (avec le concours des provinces qui participent à cette enquête). Il convient de souligner que des sociétés ont pu recevoir plus d'un questionnaire si elles oeuvrent dans plus d'une

province. Le nombre de sociétés agissant comme exploitants réels de projets d'exploration au pays s'établirait plutôt à 900. Bon nombre d'associés de coentreprises fournissent des fonds, mais puisqu'ils ne sont pas exploitants de projet, ils ne signalent pas les sommes qu'ils entendent consacrer à l'exploration. Dans cette enquête, on demandait aux sociétés leurs prévisions de dépenses d'exploration pour l'exercice financier allant du 1^{er} avril 1991 au 31 mars 1992.

Ces statistiques de dépenses d'exploration ont été compilées sous la classification «exploration générale» et «exploration à la mine». Les prévisions des dépenses d'exploration comprennent les dépenses pour travaux physiques et levés sur le terrain, les dépenses foncières connexes, les frais généraux reliés aux travaux sur le terrain, et les dépenses du siège social imputables aux travaux d'exploration.

Résultats

Statistique Canada a publié les résultats sous la rubrique «exploration sur la propriété (à la mine)» dans sa publication annuelle intitulée *Dépenses d'exploration, de développement et d'immobilisations pour les mines et les puits de pétrole et de gaz naturel - Perspective 1991* (n° 61-216 au catalogue de Statistique Canada). Au total, les dépenses d'exploration à la mine pour 1991 s'élèvent à 88 millions de dollars. Ce chiffre a été révisé à la hausse par EMR à 98 millions à la suite d'informations plus récentes.

EMR publiera les résultats de cette enquête dans l'édition de septembre 1991 de son *Rapport mensuel sur l'industrie minière au Canada*. Les premières indications laissent croire que l'exploration de nature générale («hors chantier») totaliserait 548 millions de dollars.

Par conséquent, d'après les intentions exprimées par les sociétés entre décembre 1990 et mars 1991, les dépenses totales d'exploration (tant au chantier qu'hors chantier) pourraient s'établir à environ 646 millions de dollars (soit 548 millions plus 98 millions).

Interprétation

Les enquêtes des intentions de Statistique Canada et d'EMR donnent une idée des sommes totales que l'industrie entendait consacrer, à la fin de 1990, à

l'exploration en 1991. Cependant, vu que les intentions exprimées à la fin de 1990 ont pu être modifiées par des événements limitant la disponibilité des fonds, tels la situation boursière, les fluctuations du prix des métaux et par d'autres facteurs économiques propres à une société ou d'ordre général tels la récession qui sévit, il se peut bien que les résultats de cette enquête ne puissent plus être interprétés comme des prévisions réalistes des travaux d'exploration qui seront effectivement exécutés en 1991.

Au tableau 2 figurent les intentions ainsi que les dépenses préliminaires et les dépenses réelles pour les travaux d'exploration à la mine et d'exploration générale de 1984 à 1991. Ce tableau montre qu'entre 1985 et 1988 les dépenses totales initialement déclarées préliminaires et par après réelles ont en général dépassé les intentions pour la même période. Cependant, la tendance s'est renversée en 1989. Cette situation pourrait être attribuable au fait qu'entre 1985 et 1988 le financement des travaux d'exploration devenait plus abondant que les sociétés ne l'avaient prévu à l'origine, mais 1989 a marqué un recul de la disponibilité du financement accreditif que les sociétés n'avaient pas non plus prévu. Ainsi, les dépenses réelles d'exploration en 1991 pourraient être inférieures aux données sur les intentions de 1991.

Tableau 2. Comparaison des intentions, des dépenses préliminaires et des dépenses réelles d'exploration, 1984 à 1991

		<u>Intentions</u>	<u>Préliminaires</u>	<u>Réelles</u>
		(en millions de dollars)		
1984				
Exploration à la mine			158,6	136,4
Exploration générale			<u>389,7</u>	<u>480,9</u>
Exploration totale	nd		548,3	617,3
1985				
Exploration à la mine	150,9		89,4	100,1
Exploration générale	<u>361,2</u>		<u>471,5</u>	<u>488,8</u>
Exploration totale	512,1		560,9	588,9
1986				
Exploration à la mine	87,5		110,2	108,6
Exploration générale	<u>431,2</u>		<u>483,6</u>	<u>589,3</u>
Exploration totale	518,7		593,8	697,9
1987				
Exploration à la mine	122,6		121,5	161,0
Exploration générale	<u>583,2</u>		<u>849,6</u>	<u>1 139,0</u>
Exploration totale	705,8		971,1	1 300,0
1988				
Exploration à la mine	154,7		138,7	143,0
Exploration générale	<u>891,0</u>		<u>1 107,9</u>	<u>1 207,0</u>
Exploration totale	1 045,7		1 246,6	1 350,0
1989				
Exploration à la mine	111,7		160,0	115,3
Exploration générale	<u>832,2</u>		<u>766,7</u>	<u>712,5</u>
Exploration totale	943,9		926,7	827,8
1990				
Exploration à la mine	150,0		107,7	
Exploration générale	<u>633,0</u>		<u>643,5</u>	
Exploration totale	783,0		751,2	nd
1991				
Exploration à la mine	97,9			
Exploration générale	<u>548,3</u>			
Exploration totale	646,2		nd	nd

Source: Statistique Canada et enquête fédérale-provinciale des sociétés d'exploitation et d'exploration. L'enquête sur les dépenses réelles de 1990 est en cours, les enquêtes sur les dépenses préliminaires et réelles pour 1991 ne seront pas envoyées avant la fin de 1991 et le début de 1992.
nd: non disponible

2.3 Dépenses d'exploration des grandes sociétés en 1990 et 1991

Méthode

Les renseignements sur les dépenses d'exploration par catégorie de sociétés (réelles pour 1989, préliminaires pour 1990 et intentions pour 1991) sont maintenant tirées de l'enquête fédérale-provinciale des dépenses préliminaires et prévisionnelles d'exploration. Environ 224 grandes sociétés actives en 1990 et 195 en 1991 ont signalé des dépenses d'exploration. Sont compris dans ce chiffre relatif aux grandes sociétés les producteurs et leurs sociétés affiliées ainsi que des sociétés étrangères et pétrolières. Dans le cas d'une coentreprise, les dépenses totales de projet ne sont signalées que par l'exploitant. Ainsi la participation des grandes sociétés a parfois été surestimée. Malgré tout, l'analyse des données a été constante au cours des ans et une tendance claire s'en dégage.

Résultats

Selon l'enquête fédérale-provinciale, la baisse du niveau des dépenses effectuées par les grandes sociétés a été importante de 1988 à 1989, soit de 22 %, passant de 708 millions à 555 millions. Cette baisse se poursuivra vraisemblablement, mais à un rythme plus lent. L'estimation préliminaire de 1990 (502 millions) représente un recul de 10 % par rapport à 1989, et les intentions pour 1991 (462 millions) une baisse de 8 % par rapport aux dépenses de 1990. Les grandes sociétés ont effectué 52 % du total des dépenses d'exploration en 1988, 67 % en 1989 et 1990, et elles devraient se partager 72 % du total en 1991.

Les intentions totales pour 1991 se chiffrant à 646 millions et celles des grandes sociétés à 462 millions, il en résulte que les intentions des petites sociétés pour 1991 s'élèvent à 184 millions. Cependant, les niveaux des dépenses d'exploration de ces dernières sont déterminées beaucoup plus par la disponibilité des fonds que par les intentions des sociétés.

2.4 Perspectives d'exploration d'après le prix des métaux

Méthode

Une analyse rétrospective des données révèle que le niveau des dépenses d'exploration minière effectuées au cours d'une année donnée peut être relié aux prix des métaux de l'année précédente. Cette constatation pourrait s'expliquer par le fait que les sociétés qui financent les travaux d'exploration traitent l'exploration comme tout autre investissement dont le rendement escompté dépend des revenus anticipés de l'exploitation subséquente des gisements découverts. Il semble également que les prix actuels occupent une place de premier plan dans l'esprit des investisseurs lorsqu'ils tentent de prévoir l'évolution future des prix. En outre, les prix contribuent à déterminer la marge brute d'autofinancement et, par conséquent, les fonds disponibles pour l'exploration.

Les variations des dépenses d'exploration tendent à suivre les fluctuations des prix, car les travaux d'exploration exécutés au cours d'une année font suite à un processus de budgétisation qui a lieu au cours de l'année précédente. Les affectations de fonds tendent par conséquent à refléter le prix des métaux en vigueur pendant l'année précédente.

La figure 2 montre le lien entre les dépenses d'exploration et l'indice des prix annuels des métaux d'EMR, décalés d'une année. Il s'agit d'un indice composé des prix de six métaux: l'or, l'argent, le cuivre, le zinc, le plomb et le nickel.

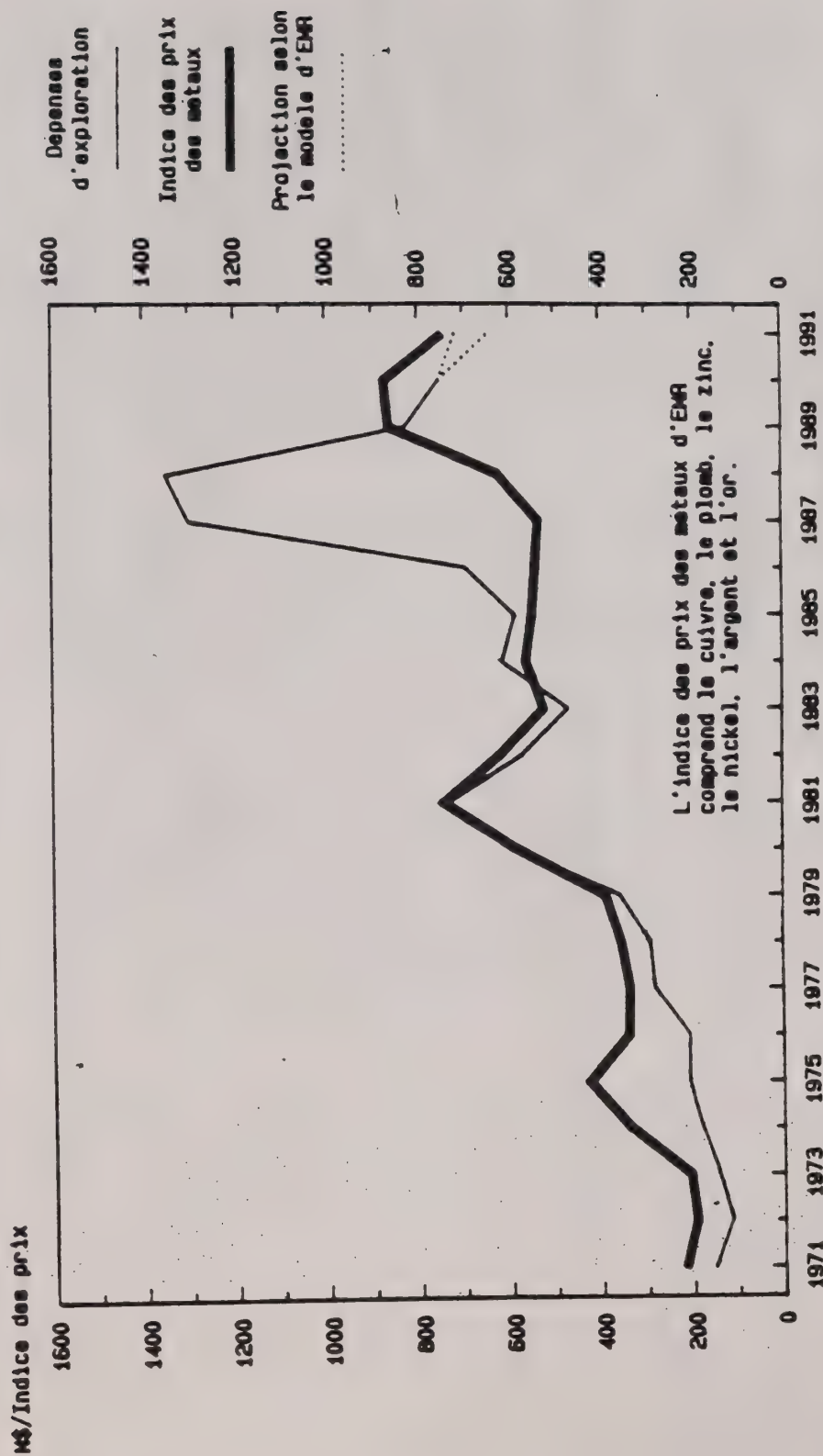
En raison sans aucun doute du recours considérablement accru aux actions accréditives par les petites sociétés minières entre 1986 et 1988, la corrélation entre les dépenses totales d'exploration et les prix des métaux s'est atténuée au cours de cette période.

Résultats

Compte tenu du rapport entre l'exploration minière et les prix des métaux observé entre 1971 et 1990, les dépenses totales d'exploration pourraient s'élever au maximum en 1991 à près de 717 millions de dollars (voir la figure 2). De plus, il est estimé que les grandes sociétés pourraient consacrer jusqu'à 532 millions à l'exploration en 1991 (voir la figure 3).

Figure 2

DÉPENSES TOTALES D'EXPLORATION ET PRIX DES MÉTAUX CANADIENS DÉCALÉS D'UNE ANNÉE



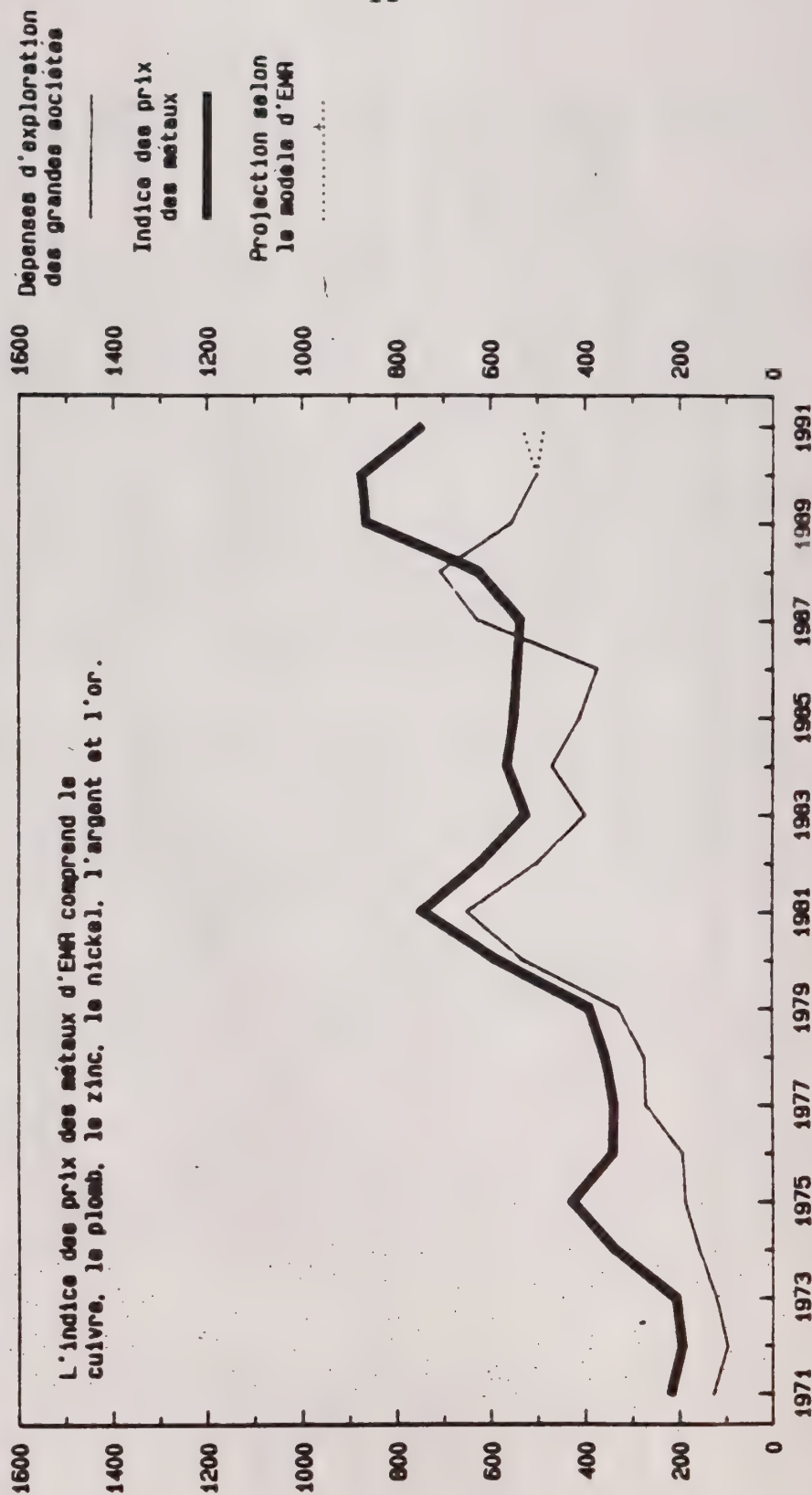
Sources: publications nos 61-007 et 61-216 au catalogue de Statistique Canada pour les données sur l'exploration entre 1971 et 1985; pour les années 1986 à 1988 les totaux avec frais généraux ont été obtenus en multipliant les dépenses sur le terrain de l'enquête fédérale-provinciale par le rapport total/dépenses sur le terrain de Statistique Canada; l'estimation préliminaire pour 1990 est fondée sur les enquêtes fédérales-provinciales coordonnées par Statistique Canada et EMR; la projection pour 1991 provient du modèle d'EMR.

Les dépenses sont exprimées en dollars courants et comprennent les frais généraux.

Figure 3

DÉPENSES D'EXPLORATION DES GRANDES SOCIÉTÉS ET PRIX DES MÉTAUX CANADIENS DÉCALÉS D'UNE ANNÉE

Millions de dollars et indice des prix



Source: Les dépenses des grandes sociétés ont été évaluées par EMR de 1971 à 1988; les résultats de 1989 et l'estimation préliminaire pour 1990 sont fondés sur les enquêtes fédérales-provinciales coordonnées par Statistique Canada et EMR; la projection pour 1991 provient du modèle d'EMR.

Les dépenses sont exprimées en dollars courants et comprennent les frais généraux.

Même si le modèle utilise les prix annuels moyens des métaux pour prévoir les dépenses d'exploration, il est probable qu'une variation importante des prix au cours du second semestre d'une année ne serait pas entièrement détectée par la moyenne annuelle. S'il est vrai que les budgets d'exploration sont établis vers la fin de l'année, la baisse des prix enregistrée au dernier trimestre de 1990 (et qui se poursuit en 1991) peut avoir influé sur les intentions des dépenses d'exploration pour 1991, sans que cet effet en soit décelé par le modèle. Pour cette raison, le modèle s'est servi des prix moyens des métaux en 1990 selon les prix à la fin de l'année, ce qui a conduit à une estimation d'environ 485 millions pour les grandes sociétés et environ 645 millions pour l'ensemble de l'exploration pour 1991.

Même s'il découle de l'écart entre ces deux chiffres que les petites sociétés dépenseraient 160 millions, nous n'avons pas tenté de prévoir les dépenses d'exploration des petites sociétés à l'aide de cette méthode, car dans ce secteur les dépenses sont définies largement par la disponibilité des fonds sur les marchés boursiers.

2.5 Travaux récents de forage au diamant

Un autre indicateur de l'évolution des niveaux d'exploration nous est donné par l'analyse des données sur le forage au diamant. L'Association canadienne de forage au diamant (ACFD) recueille tous les mois les données fournies par ses sociétés membres. Les statistiques disponibles de l'ACFD touchent environ de 50 à 60 % de tous les travaux de forage au diamant à façon au Canada et sont habituellement disponibles de un à trois mois après la fin du mois.

Par opposition, en raison des retards mis par de nombreuses sociétés à répondre, les statistiques annuelles sur les dépenses d'exploration provenant de l'enquête fédérale-provinciale sur l'exploration ne sont normalement pas disponibles avant environ un an après l'année d'exploration. Par conséquent, il s'agit de dépenses et travaux d'exploration qui ont été effectués au cours des 12 à 24 mois précédents.

Au cours des 10 à 15 dernières années, on remarque une corrélation assez étroite entre le métrage annuel signalé par l'ACFD et les dépenses d'exploration au pays. Ainsi, les statistiques de forage figurant à la figure 4 (par mois, de 1985 à 1991), la figure 5 (par trimestre, de 1985 à 1991) et la figure 6 (par année,

de 1973 à 1990) devraient donner une idée assez claire et à jour de l'évolution récente des travaux d'exploration minière au pays. En outre, un graphique complet (figure 7) montre sur 17 années l'évolution du forage total à façon jusqu'en 1989, tel que signalé annuellement à EMR par les foreurs au diamant et publié au n° 26-201 du catalogue de Statistique Canada. Même si ces deux sources arrivent à des résultats annuels différents, la même tendance globale peut être observée en dépit du fait que les statistiques de l'ACFD sont incomplètes parce que tous les foreurs au diamant au Canada ne sont pas membres de l'ACFD et que les sociétés membres ne signalent pas toutes leurs travaux de forage à l'ACFD.

Comme le montre la figure 5, les trois dernières années (1988, 1989 et 1990) accusent la même baisse d'intensité des travaux au cours de l'année, le premier trimestre de 1988, 1989 et 1990 affichant une hausse par rapport au dernier trimestre de l'année précédente. Les travaux ont toujours culminé au premier trimestre parce que les fonds accreditifs de l'année précédente étaient reportés en janvier et février de l'année suivante et qu'une bonne partie du forage doit être effectuée pendant les mois d'hiver sur la glace des lacs et des zones de maskeg, qui sont généralement inaccessibles au forage pendant le reste de l'année. La tendance générale à la baisse ressentie tout au long de 1988, 1989, 1990 et 1991 fait contraste à la situation de 1986 et 1987, où les niveaux de forage au diamant au second semestre étaient supérieurs à ceux du premier en raison de la disponibilité accrue du financement accreditif. La baisse au deuxième semestre de 1988 confirme la perception générale que les travaux d'exploration ont commencé à ralentir en 1988 après avoir atteint un sommet à la fin de 1987 et au début de 1988. La baisse des travaux de forage au cours des deux derniers trimestres de 1988 traduit l'effet de la diminution du financement accreditif disponible aux petites sociétés dont les travaux d'exploration sont davantage fonction des actions accreditives que du prix des métaux. Pendant le second semestre de 1988, le marché des actions accreditives a manifesté des signes d'essoufflement en raison de la baisse du prix de l'or, et le cours des actions des petites sociétés a continué de se détériorer. Malgré ce ralentissement dans les travaux de forage, les dépenses totales d'exploration se sont chiffrées en 1988 à 1,35 milliard, ce qui représente un niveau très élevé par rapport aux années antérieures.

FORAGE DE SURFACE ET SOUTERRAIN PAR MOIS — DE JANVIER 1985 À MAI 1991

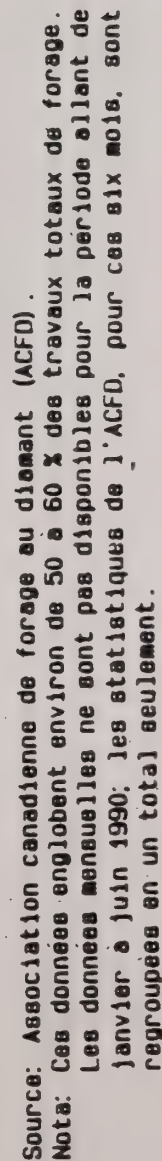
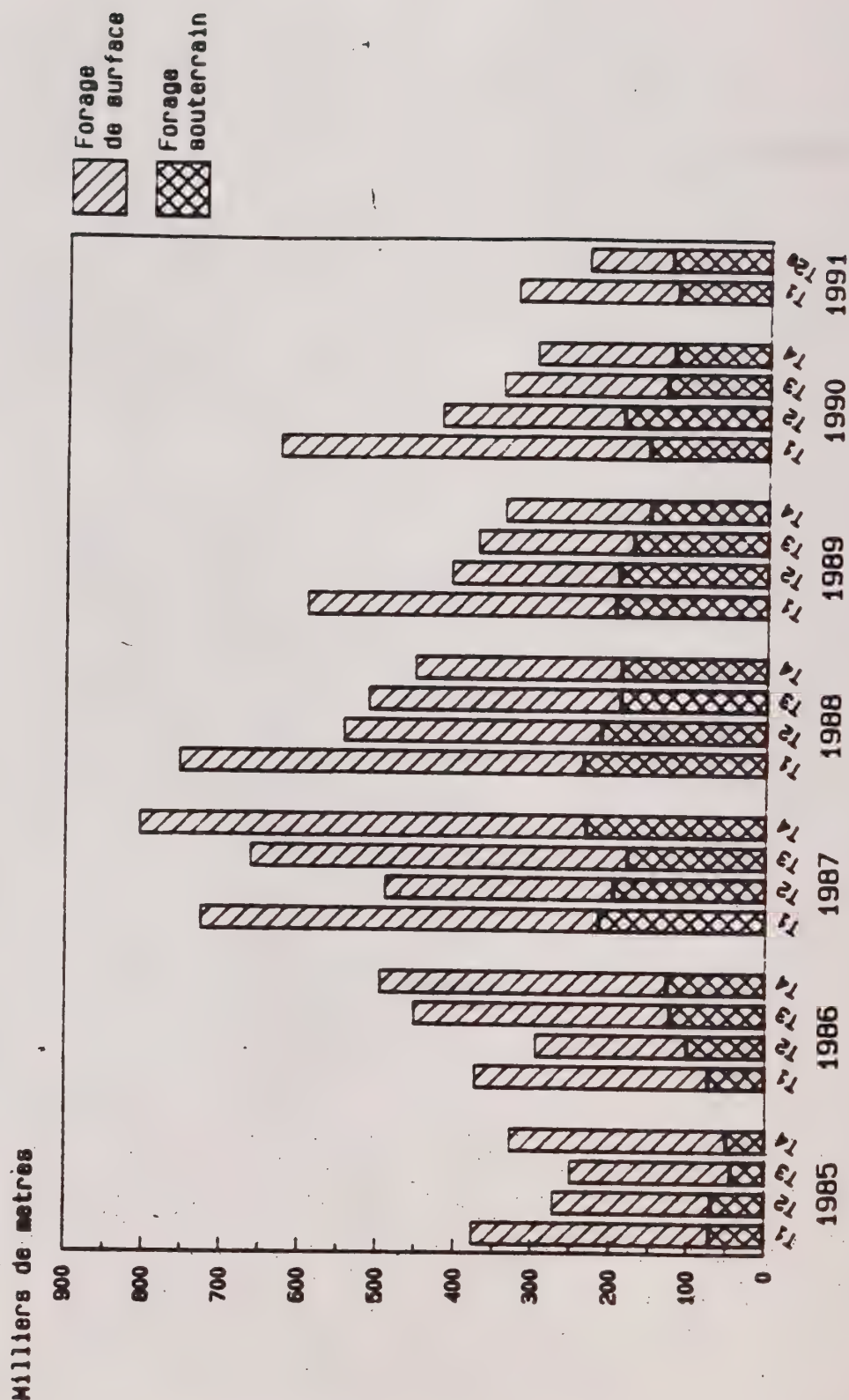
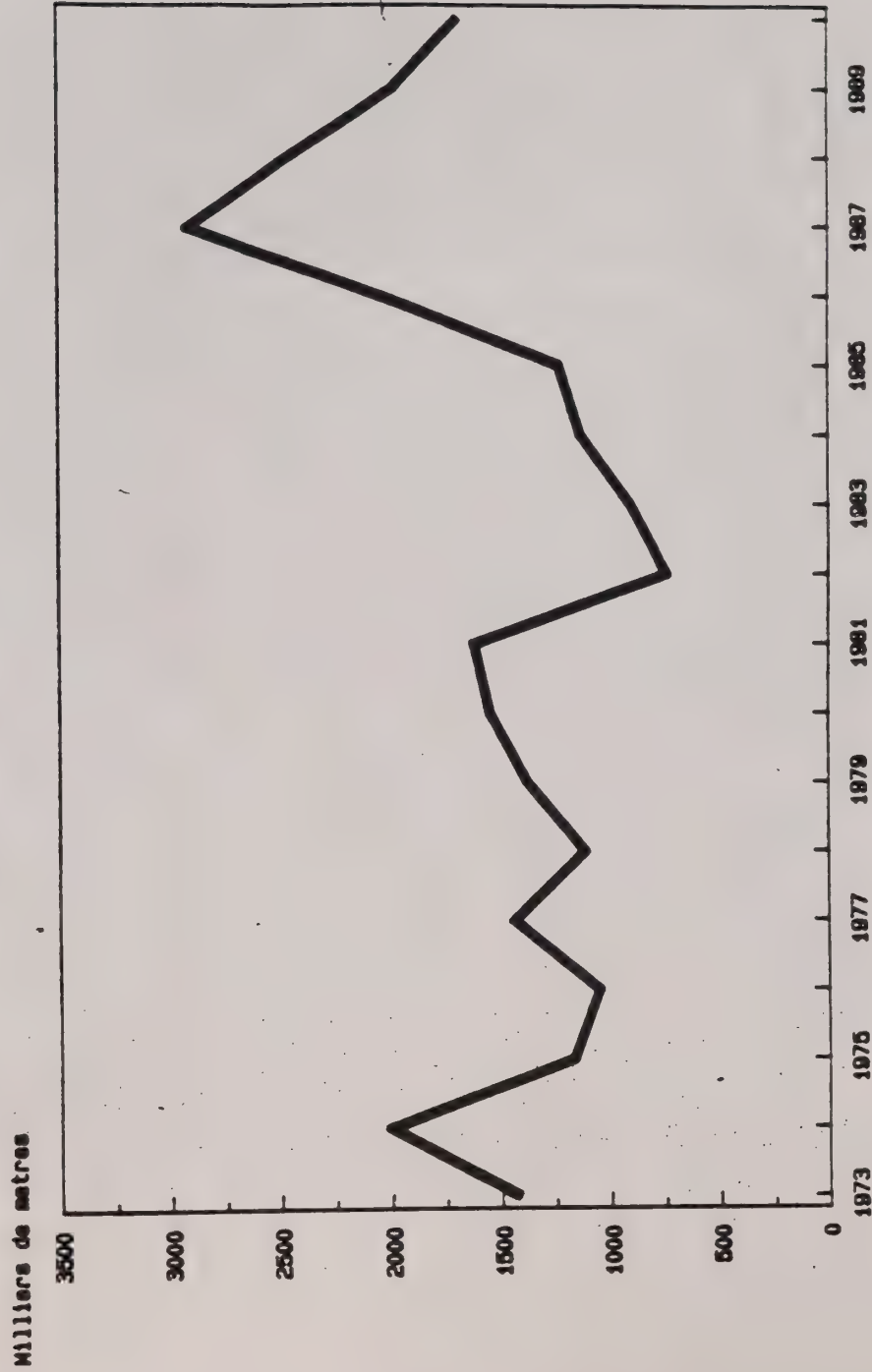


Figure 5
FORAGE DE SURFACE ET SOUTERRAIN
PAR TRIMESTRE - 1985 À 1991



Source: Association canadienne de forage au diamant (ACFD).
Note: Ces données, fournies par les entrepreneurs de l'ACFD, englobent environ de 50 à 60 % des travaux totaux de forage.
→ estimation.

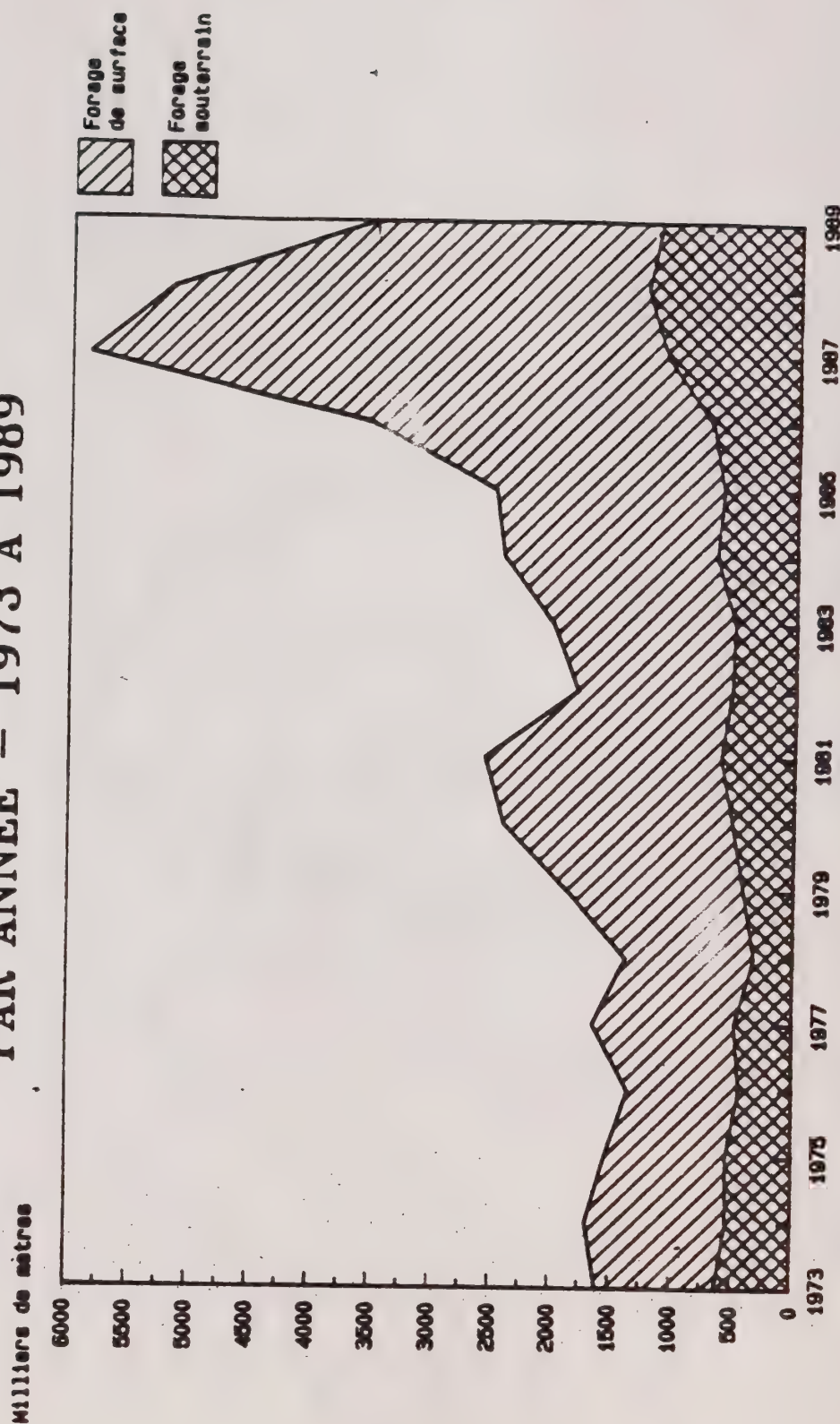
Figure 6
FORAGE DE SURFACE ET SOUTERRAIN
PAR ANNÉE - 1973 À 1990



Source: Association canadienne de forage au diamant (ACFD).
Note: Ces données englobent environ de 50 à 60 % des travaux totaux de forage.

Figure 7

FORAGE DE SURFACE ET SOUTERRAIN TRAVAUX DE FORAGE AU DIAMANT À FAÇON PAR ANNÉE - 1973 À 1989



Source: Publication no 26-201 au catalogue de Statistique Canada.
Note: Les données réfèrent au code CII 0921. 1989 est la dernière année pour laquelle les données sont disponibles.

Les travaux de forage ont poursuivi leur chute au second trimestre de 1991, en grande partie parce que les petites sociétés ont éprouvé de plus en plus de difficultés à réunir des fonds par la vente d'actions, accréditives ou autres.

Les graphiques illustrant la tendance sur 18 (1973 à 1990) et 17 années (1973 à 1989) (figures 6 et 7) ainsi que les données des années précédentes sur l'exploration au Canada montrent très clairement que 1987 et 1988 ont été des années record au chapitre du forage au diamant. Les niveaux de 1989 et de 1990 étaient encore élevés par rapport à celui de 1981, sommet antérieur avant la montée en flèche du marché accréditif. Cependant, le nombre de mètres forés semble avoir diminué considérablement en 1991.

Le forage au diamant en surface a varié beaucoup plus que le forage souterrain (voir les figures 4, 5 et 7). On pourrait en déduire qu'une grande partie du forage souterrain consiste en des travaux à façon visant à définir de nouvelles réserves de minerai aux mines productrices. Dans la cueillette des statistiques sur les dépenses d'exploration, les dépenses de cette nature sont classées comme des «dépenses de mise en valeur» plutôt que des «dépenses d'exploration». Ainsi, une bonne part du forage souterrain au diamant ne représente pas du «forage d'exploration», c'est-à-dire axé sur la recherche de nouveaux gisements. Cependant, la hausse des travaux de forage souterrain au diamant qui s'est produite au cours de la deuxième moitié des années 80 est attribuable à la recherche de gisements d'or se trouvant à l'étape de l'exploration, soit des mines non productrices ou pour lesquelles aucune décision d'entrée en production n'avait été prise. Cependant, en interprétant les figures 4 à 7, malgré la corrélation assez étroite des dépenses d'exploration et du métrage de forage au diamant à façon qui s'est généralement appliquée à la période débutant vers 1975, il est important de tenir compte du fait que les niveaux récents de travaux de forage au diamant ne donnent qu'une idée approximative des niveaux récents d'exploration au Canada et qu'en raison de l'inclusion du forage souterrain aux mines productrices, les figures 4, 5 et 7 peuvent en réalité gonfler les niveaux récents d'exploration minière.

3. Vue d'ensemble de l'exploration minière en 1991

La présente section reprend les renseignements discutés ci-dessus.

En 1990, les dépenses totales d'exploration se sont élevées à environ 751 millions de dollars, les grandes sociétés se partageant environ 502 millions et les petites sociétés, environ 249 millions. Ce montant préliminaire est de beaucoup inférieur au 1,35 milliard enregistré en 1988 et un peu plus bas que les 828 millions dépensés en 1989.

Pour établir une prévision globale pour 1991, il est nécessaire de concilier des montants provenant de diverses sources. L'enquête sur les intentions en matière d'exploration prévoit des dépenses de l'ordre de 646 millions en 1990. Comme il en a été question ci-haut, ce chiffre comprend 462 millions pour les grandes sociétés et 184 millions pour les petites.

L'analyse de régression fournit une autre source d'information. La relation qui existe entre les dépenses totales d'exploration et les prix des métaux permet d'établir le niveau global d'exploration à 717 millions, ou un peu moins, soit une estimation raisonnable d'après les prix annuels moyens des métaux en 1990. En utilisant les prix moyens des métaux qui ont eu cours vers la fin de 1990, la même analyse de régression donne une estimation de 645 millions, soit un montant étonnamment près de l'estimation de 646 millions découlant de l'enquête sur les intentions, dont 485 millions pour les grandes sociétés, ce qui laisse entrevoir 160 millions pour les petites sociétés.

Une autre façon d'estimer les dépenses totales d'exploration pour 1991 consiste à additionner le financement par actions ordinaires des petites sociétés (y compris les actions accréditives) et les intentions des grandes sociétés. Cet exercice repose donc sur les tendances de financement en 1991. L'enquête sur les intentions, effectuée à la fin de 1990, révèle que les dépenses d'exploration des grandes sociétés s'élèveraient à 462 millions, alors que l'analyse de régression donne un chiffre de 485 millions d'après les prix moyens des métaux à la fin de 1990. On pourrait soutenir que ces niveaux de dépenses seront fort probablement atteints parce que les grandes sociétés sont plus certaines de leurs sources de financement que les petites. Tenant compte du fait que les grandes sociétés déclarent les dépenses de leurs associés lorsqu'elles sont exploitants de projet et qu'il n'est pas possible de déterminer avec précision la réduction nécessaire pour éviter un double comptage, les dépenses des grandes sociétés ont été arbitrairement ramenées à 450 millions.

Le niveau de dépenses des petites sociétés est plus difficile à cerner étant donné qu'il dépend en grande partie de la disponibilité de fonds et, au cours des dernières années, surtout des actions accréditives. Comme nous l'avons vu à la section A, les petites sociétés pourraient probablement réunir environ 40 millions sous forme d'actions accréditives en 1991. Si ce montant s'avère exact, il resterait donc à rassembler quelque 140 millions de financement non accréditif si les intentions d'exploration (quelque 180 millions) des petites sociétés devaient se réaliser conformément à l'enquête fédérale-provinciale. EMR ne peut souscrire à ce niveau de dépenses d'exploration de la part des petites sociétés en 1991 parce que les renseignements obtenus jusqu'ici ne permettent pas de croire qu'elles obtiendront le financement requis pour de tels niveaux de dépenses. Une étude détaillée des intentions des petites sociétés provenant de la liste de l'enquête fédérale-provinciale et une comparaison des financements non accréditifs signalés dans les médias et recueillis dans d'autres sources d'information révèlent qu'une somme de 40 millions pourrait être réunie de façon assez certaine. Quant aux autres 100 millions d'intentions, EMR est d'avis que peut-être seulement 50 % au maximum pourraient être réunis, soit 50 millions. En additionnant ces chiffres (40 millions en financement accréditif éventuel, 40 millions de financement non accréditif probable et 50 autres millions possibles en financement non accréditif), on obtient une fourchette allant de 80 à 130 millions de dollars pour les petites sociétés.

En se fondant sur la prévision susmentionnée concernant les dépenses des petites sociétés et l'estimation de 450 millions pour les grandes sociétés, EMR attache plus de crédibilité à un total de dépenses d'exploration de l'ordre de 530 à 580 millions qu'aux niveaux prévus par le modèle de régression ou l'enquête fédérale-provinciale.

PARTIE B. SITUATION RÉGIONALE

4.1 Introduction

La présente partie donne les observations des représentants provinciaux et territoriaux au sujet des récents travaux d'exploration ainsi que leurs perspectives pour 1991.

Dans l'ensemble, les provinces et territoires indiquent que l'exploration préliminaire est à la baisse et que l'exploration est davantage axée sur les projets avancés. Ils ajoutent que les activités des petites sociétés sont peu nombreuses et que l'exploration est principalement planifiée et effectuée par les grandes sociétés ou par des petites sociétés qui ont reçu des fonds des grandes. Les efforts d'exploration sont moins centrés sur les métaux précieux et davantage sur les minéraux polymétalliques et industriels. Compte tenu de la conjoncture des marchés financiers, certaines provinces ont annoncé la mise en oeuvre ou l'amélioration de l'assistance financière aux petites sociétés d'exploration minière en 1990 et 1991.

4.2 Terre-Neuve et le Labrador

En 1990, les travaux d'exploration minière à Terre-Neuve ont connu une baisse par rapport aux niveaux records établis en 1988 et 1989.

En 1990, les grands efforts d'exploration ont été déployés vers les métaux communs et l'or, les minéraux industriels suscitant un intérêt faible mais grandissant. Les dépenses d'exploration pendant cette année ont été consacrées principalement aux projets d'exploration avancés. Ces programmes ont été orchestrés par les grandes sociétés, le secteur des petites sociétés n'effectuant qu'une faible partie des travaux d'exploration.

Statistiques sur les claims jalonnés

Il semblerait que l'augmentation progressive du nombre de claims en règle de 1983 à 1989 ait atteint un sommet. En 1990, il y a eu une chute d'environ 20 000 claims. Cette tendance semble se poursuivre en 1991, les statistiques du premier semestre révélant le jalonnement de 3 350 et l'existence de 39 260 claims en règle.

Forage au diamant

Le forage au diamant est peut-être la principale activité qui fait partie et montre l'importance de l'exploration. Le niveau d'activité enregistré en 1988 à Terre-Neuve et au Labrador découle de la conjonction de facteurs, les capitaux d'exploration réunis grâce aux stimulants fiscaux accordés aux actions accreditives n'étant pas le moindre. Le forage au diamant en 1989 et 1990 a connu une baisse considérable par rapport aux 234 000 mètres forés en 1988 mais se situe quand même à un niveau très respectable. Pour 1991, on prévoit 25 000 mètres (\pm 5 000 mètres). Cette importante baisse n'augure pas bien pour la découverte possible de nouveaux gisements.

Dépenses d'exploration

La valeur totale de l'exploration en 1990 représente une baisse de 50 pour cent par rapport à 1988. Les prévisions pour 1991 révèlent que cette tendance se poursuivra. Les travaux sont maintenant axés sur les projets plus avancés, et une réduction considérable du niveau de l'exploration préliminaire se fait sentir.

Sommaire

L'année 1991 s'annonce mauvaise et alarmante pour l'exploration minière à Terre-Neuve et au Labrador. Tous les principaux indicateurs de l'exploration - claims jalonnés, claims en règle, forage au diamant et dépenses d'exploration - accusent un recul sensible par rapport aux années précédentes. Il est peu probable que cette situation pourrait se renverser. Cependant, la province compte un certain nombre de cibles prometteuses qui continuent à être explorées par des grandes sociétés.

Statistiques sur l'exploration à Terre-Neuve et au Labrador

	1988	1989	1990pr	1991p
Dépenses annuelles d'exploration (\$)	41 155 481	36 252 686	23 617 000	13 000 000
Jalonnement de claims				
claims jalonnés	26 199	17 190	10 508	6 000
en règle	65 822	63 596	44 833	26 000
Dépenses d'exploration sur le terrain				
MC-MP	17 559 585	10 970 673	10 019 723	nd
or	18 698 498	14 895 933	7 054 863	nd
autres	457 370	1 364 328	2 245 051	nd
Forage au diamant (mètres)				
Production/développement	17 449	16 355	8 884	nd
Exploration	217 382	106 497	84 462	nd
Total	234 831	122 852	93 346	25 000

Source: Ministère des Mines et de l'Énergie (28/06/90)
MC: métaux communs; MP: métaux précieux; p: prévision;
pr: préliminaire; nd: non disponible

4.3 Nouvelle-Écosse

En 1990, les travaux d'exploration se sont poursuivis à un rythme modéré. Certaines grandes sociétés ont manifesté un regain d'intérêt à l'égard des cibles de minéraux polymétalliques et de métaux communs. Les minéraux industriels et le charbon se sont maintenus, apportant leur contribution habituelle à l'activité globale. Les petites sociétés n'ont pas été aussi actives que par les années passées, principalement en raison du déclin de l'intérêt des investisseurs envers l'or. La plupart des grands programmes d'exploration souterraine et en surface, entrepris en 1987 et 1988, ont été suspendus. En général, les investissements dans l'exploration et la mise en valeur de mines sont à la baisse depuis 1988. Cette tendance est attribuable à l'abolition des programmes d'encouragement fiscal, de la faiblesse des prix des métaux et de la difficulté de réunir des capitaux à risque élevé. Les indicateurs de l'exploration pour la période allant de 1980 à 1990 figurent au tableau ci-contre.

Le nombre de claims jalonnés en 1990 (10 910) est légèrement inférieur au niveau de 1989. Le nombre total de claims à la fin de l'année, soit 28 641, a aussi diminué, révélant l'abandon d'un nombre assez important de claims.

Les dépenses totales estimées pour tous les travaux d'exploration en 1990 s'élèvent à 10 millions de dollars, soit moins de la moitié de la somme dépensée en 1989. Les travaux de forage au diamant exécutés en 1990 (20 000 m) étaient aussi à la baisse, la moitié du total de 1989.

La majeure partie des travaux effectués au premier semestre de 1991 est attribuable à de grandes sociétés ou à des petites sociétés ayant reçu des fonds de grandes. Un certain nombre de grandes sociétés qui n'avaient pas exploré la province au cours des dernières années ont manifesté un regain d'intérêt.

En 1991, les cibles principales ont été des métaux communs dans des milieux géologiques reconnus depuis longtemps, particulièrement les bassins du Carbonifère inférieur. La recherche de gisements polymétalliques dans les couches précambriennes de l'île du Cap-Breton s'est également intensifiée. L'exploration d'or dans la zone Meguma s'est atténuée considérablement cependant, trois cibles prometteuses ayant été mises de côté en attendant une injection de nouveaux fonds.

Le jalonnement de claims pour le premier semestre de 1991 s'établit à un niveau légèrement inférieur à la moyenne de 1990. Le nombre total de claims en vigueur en fin d'année devrait également diminuer par rapport à 1990.

Les travaux d'évaluation effectués au cours des six premiers mois de 1991 (traduisant les travaux exécutés dans les 12 mois précédents) ont totalisé environ 2 millions de dollars, contre 11,6 millions pour la même période en 1990.

Une prévision modifiée découlant de données fournies par Énergie, Mines et Ressources Canada révèle que les dépenses totales d'exploration pour 1991 seront probablement inférieures à celles de 1990, entre 5 et 8 millions de dollars.

TABEAU

INDICATEURS DE L'EXPLORATION DE 1980 À 1990 MINISTÈRE DES MINES ET DE L'ÉNERGIE DE LA NOUVELLE-ÉCOSSE

Année	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
nouveaux claims	75 464*	52 018*	29 690	29 057	19 268	28 500	32 685	33 419	20 132	11 397	10 910
claims totaux et équivalents en effet	83 135	94 408	52 236	54 310	40 438	41 173	46 086	63 585	43 590	37 745	28 641
valeur des travaux d'éva- luation reçus (en millions de dollars)	7,5	8,4	4,1	4,2	2,6	2,3	9,9	26,7	29,0	31,3	16,6
estimation des dépenses totales d'ex- ploration	(10,0)	14,6	5,5	6,5	7,3	9,0	21,0	45,0	49,0	22,0	10,0
forage total (en milliers de mètres)		78,0	24,0	30	50,0	45	75	215	110	42	20,0

* approximation

4.4 Nouveau-Brunswick

L'industrie de l'exploration du Nouveau-Brunswick est dominée par six sociétés représentant les secteurs des grandes et des petites sociétés.

À la fin de 1990, on a signalé le plus grand nombre de claims en vigueur depuis 1955, même si le nombre de nouveaux claims inscrits a accusé une baisse sensible par rapport à l'année précédente. Les données préliminaires indiquent qu'environ 18 millions de dollars ont été consacrés à l'exploration au Nouveau-Brunswick en 1990.

Les répondants à une enquête menée par le gouvernement fédéral sur les prévisions de dépenses ont fait savoir qu'ils affecteront environ 21,7 millions de dollars au Nouveau-Brunswick en 1991. L'analyse des statistiques pertinentes disponibles fait ressortir qu'au cours des deux premiers trimestres de 1991, l'inscription et le renouvellement de claims, les visites aux bureaux et les demandes de renseignements par l'industrie sont à la hausse par rapport à la même période l'an dernier. Le nombre total de claims et d'équivalents atteignait 30 247 à la fin de juin, soit un peu plus qu'à la même période en 1990.

La majeure partie des travaux d'exploration seront axés sur les métaux communs. Cependant, les métaux précieux recevront également leur part des dépenses d'exploration. Tout laisse croire qu'en 1991 le secteur de l'exploration effectuera les levés géoscientifiques courants au sol, et des fonds seront également affectés à des programmes de creusage et de forage.

4.5 Québec

FINANCEMENT PAR ACTIONS ACCRÉDITIVES ET DÉPENSES D'EXPLORATION AU QUÉBEC EN 1990 ET 1991

Financement par actions accréditives

Au Québec, en 1990, le financement des dépenses d'exploration par actions accréditives a été sérieusement touché par le ralentissement économique et par l'abolition du Programme fédéral de stimulation de l'exploration minière au Canada. La prolongation de deux ans par le gouvernement du Québec des déductions additionnelles pour les dépenses d'exploration (allant jusqu'à 66 2/3% pour certains travaux de surface) ne semble pas en mesure de renverser, à elle seule, la

tendance défavorable prévalant depuis le krach boursier d'octobre 1987. Ainsi, pour 1990, le montant recueilli au moyen de ce mode de financement a été de l'ordre de 48 millions de dollars, plus faible que le niveau de 73 millions de dollars enregistré en 1989.

Pour 1991, le financement par les actions accréditives poursuit encore cette tendance à la baisse. En effet, les petites sociétés d'exploration n'ont réussi à réunir qu'un montant d'environ 4 millions de dollars au premier semestre. Avec la reprise économique escomptée, la situation pourrait s'améliorer d'ici la fin de l'année, mais le montant total prévu pour toute l'année ne dépassera sans doute pas la fourchette de 15 à 20 millions de dollars.

Afin d'aider les PME d'exploration les plus dynamiques à demeurer actives, le gouvernement du Québec a instauré en mai 1991 un programme d'aide financière avec contrepartie d'une durée d'un an, dont l'objectif est de permettre aux petites sociétés de poursuivre la mise en valeur de leurs propriétés minières. Doté d'une enveloppe budgétaire de cinq millions de dollars et administré par la Société québécoise d'exploration minière (Soquem), ce programme est destiné aux petites sociétés ayant leur siège social au Québec et qui ont effectué, depuis le 1er janvier 1988, au moins 300 000 \$ de travaux d'exploration. De plus, les projets sélectionnés engagent des dépenses d'au moins 100 000 \$ et ne doivent faire l'objet d'aucune subvention gouvernementale.

**Financement par actions accréditives et dépenses d'exploration au Québec
(en millions de dollars)**

	1988	1989	1990 ⁴	1991
Actions accréditives ¹	154	73	47	15-20 ²
Dépenses d'exploration ³				
Hors chantier	331	164	153	141 ⁵
Au chantier	39	32	33	20 ⁵
TOTAL	370	196	186	161⁵

1. Ces montants comprennent les frais reliés au financement par les sociétés en commandite.
2. Prévisions.
3. Source : ministère de l'Énergie et des Ressources.
4. Données préliminaires.
5. Données prévisionnelles à partir de l'enquête effectuée à l'automne 1990, et confirmées par un sondage téléphonique réalisé en juillet 1991.

Dépenses d'exploration

L'enquête menée auprès des entreprises minières, relativement à leurs prévisions d'investissement, prévoit en 1991 une dépense totale de 161 millions de dollars, dont 141 millions pour l'exploration hors chantier et 20 millions pour l'exploration au chantier. C'est une baisse de 13.4 % par rapport à l'année précédente et plus de deux fois plus prononcée que celle enregistrée en 1990. Cette baisse découle essentiellement de la détérioration du financement par actions accréditives, principale source de financement des petites sociétés.

Toutefois, nous pouvons remarquer que depuis les trois dernières années, la baisse des dépenses globales d'exploration n'est pas aussi importante que celle enregistrée dans les recettes de financement par actions accréditives. C'est en partie grâce aux investissements des producteurs et de leurs filiales que la baisse n'est pas aussi prononcée. C'est aussi grâce aux efforts de recherche de minéraux industriels (graphite) et de métaux (chrome, nickel), en plus de l'exploration traditionnelle d'or.

Statistiques sur les claims et le forage au diamant

Le nombre de mètres forés par les entrepreneurs de forage au diamant et le nombre de claims enregistrés sont deux autres indices utiles pour suivre l'évolution des activités d'exploration. En 1990, le forage au diamant reste à peu près inchangé par rapport à 1989, soit de 1,30 millions de mètre. Pour les 5 premiers mois de 1991, ce nombre s'élève à 0,48 millions de mètres, comparativement à 0,63 millions de mètres pour la même période en 1990.

Quant aux claims enregistrés, le nombre total en 1990 est de 16 000 claims comparativement à 27 000 claims en 1989. Pour les 4 premiers mois de 1991, le nombre des claims enregistrés se chiffre à 6 405 claims, par rapport à 5 918 pour la même période en 1990.

4.6

Ontario

En 1989, les dépenses totales d'exploration minière et de mise en valeur ont atteint 560 millions de dollars en Ontario. Selon les estimations, elles seraient passées à 420 millions en 1990 et devraient chuter à 355 millions en 1991. En 1988, les dépenses totales d'exploration et de mise en valeur dans la province s'étaient chiffrées à 757 millions. Ces chiffres

comprennent les dépenses sur le terrain et les frais généraux.

Les dépenses d'exploration hors et au chantier (générales et à la mine) devraient passer de 218 millions en 1989 à 141 millions en 1990 et à 124 millions en 1991. Les dépenses de mise en valeur à la mine devraient, de leur côté, passer de 342 millions en 1989 à 279 millions en 1990 et à 232 millions en 1991. Ces chiffres comprennent les dépenses sur le terrain et les frais généraux.

Les grandes sociétés se sont partagées environ 72 % des dépenses d'exploration sur le terrain au et hors chantier totalisant 185 millions en 1989, contre 56 % en 1988. La part des dépenses des petites sociétés est donc passée de 44 % en 1988 à 28 % en 1989. Les pourcentages se rapportant aux grandes sociétés peuvent être surestimés étant donné que les fonds provenant des partenaires de coentreprises (surtout des petites sociétés) sont déclarés par les grandes sociétés.

Le nombre de claims en règle en Ontario à la fin d'avril 1991 s'établissait à environ 118 740, en baisse de 15 % par rapport aux 139 040 en avril 1990. Le nombre de claims en règle est considéré comme un bon indicateur du niveau d'exploration de l'année précédente. Il atteignait environ 125 000 à la fin de 1990, soit le niveau le plus bas depuis 1982. Le nombre de claims en règle a culminé à plus de 171 000 en 1988.

C'est dans le Nord-Est ontarien que les travaux d'exploration sont le plus intenses. Soixante pour cent des vingt-huit projets, souterrains ou à ciel ouvert, rendus à une étape avancée à la fin de 1990, se retrouvent dans le Nord-Est.

Environ 80 pour cent des projets d'exploration avancés concernent les propriétés d'or. En juillet 1991, cependant, plusieurs de ces projets étaient interrompus. Trois mines de métaux communs en sont à l'étape de la mise en valeur (il a été décidé de procéder à leur entrée en production) dans la région de Sudbury.

Les deux programmes ontariens d'encouragement, le Programme ontarien d'encouragement à l'exploration minière (POEEM) et le Programme d'aide aux prospecteurs de l'Ontario (PAPO), versent une aide financière aux personnes et sociétés qualifiées s'occupant de l'exploration et de la mise en valeur des minéraux en

Ontario. En avril 1990, le gouvernement ontarien a affecté 30 millions de dollars, sur trois ans, pour ces deux programmes. Ces fonds ainsi que certaines modifications apportées au POEEM ont pour but d'atténuer l'effet de l'abolition en février 1990 du Programme de stimulation de l'exploration minière au Canada du gouvernement fédéral.

Au cours de l'exercice 1990-1991, des subventions pouvant aller jusqu'à 10 000 \$ ont été versées à plus de 400 prospecteurs aux termes du PAPO. L'aide financière accordée dans le cadre du POEEM prend la forme de subventions équivalant à 30 % des dépenses d'exploration admissibles et pouvant atteindre 300 000 \$ par année. En 1990, 150 projets se sont vu accorder 8 millions de dollars.

En vertu d'une aide spéciale accordée dans le cadre du POEEM, jusqu'à 50 % des dépenses admissibles sont remboursées dans des régions désignées qui ont subi ou qui subiront probablement un repli économique. Ont droit à cette aide supplémentaire les régions de Kirkland Lake - Temiskaming, Elliott Lake, Manitouwadge, Atikokan et Beardmore - Geraldton - Longlac - Nanika.

4.7 Manitoba

Selon les estimations, les dépenses d'exploration devraient se situer en 1990 à 37 millions de dollars, par rapport à des dépenses estimatives de 38,5 millions en 1989 et de 40 millions en 1988. On estime que le forage au diamant de surface a atteint 197 000 mètres en 1990, 177 896 mètres en 1989 et 270 969 mètres en 1988. D'après les indications actuelles, les dépenses d'exploration de 1991 devraient être comparables à celles de 1990.

La superficie totale des claims inscrits au Manitoba en 1990 s'élevait à 130 105 hectares, contre 184 723 en 1989 et 341 722 en 1988. Cependant, l'aliénation des droits miniers (qui comprennent les claims, les permis et les baux) en règle à la fin de 1990 totalisait 2 291 049 hectares, comparativement à 1 865 317 et 1 614 463 à la fin de 1989 et 1988 respectivement.

La forte prédominance de l'exploration de l'or qui s'est fait sentir pendant la majeure partie des années 80 a fait place à la recherche de métaux communs dont les prix, contrairement à l'or, ont connu un raffermissement à la fin des années 80. Au Manitoba, cette situation se traduit par le fait que tous les

cinq projets avancés de mise en valeur concernant des gisements de métaux communs.

Les programmes d'exploration de cuivre et de zinc se sont concentrés dans la ceinture de roche verte de la région de Flin Flon - Snow Lake et, à un degré moindre, dans la région de Lynn Lake et le sud-est du Manitoba. La recherche du nickel s'est poursuivie le long de la ceinture de Thompson, particulièrement dans son prolongement sud sous la couverture paléozoïque. La recherche d'or a été axée vers les grandes ceintures de roche verte de Flin Flon-Snow Lake, Lynn Lake, Gods Lake, Island Lake et Rice Lake.

Dans son budget de 1991-1992, la province a annoncé la création du programme manitobain de stimulation de l'exploration minière. Ce programme cherche à intensifier les travaux d'exploration des petites sociétés. Seuls les investissements dans des entreprises financées aux termes d'une convention d'émission d'actions accréditives ou par une société en commandite se qualifieront. La province offre aux investisseurs une subvention de 25 % à l'égard des dépenses admissibles. La commercialisation sera effectuée par des sociétés inscrites de placements en exploration minière n'appartenant pas à la province. Le ministère de l'Énergie et des Mines étudiera les demandes d'inscription à compter du 1^{er} janvier 1992. Les émissions admissibles d'actions accréditives seront limitées à 50 millions de dollars, et le coût total pour la province est évalué à 14,5 millions pendant la durée du programme. La loi habilitante, par l'intermédiaire du projet de loi 71, a été déposée à l'assemblée législative du Manitoba en juillet.

4.8 Saskatchewan

En Saskatchewan, les géologues résidents procèdent, au moyen d'entrevues téléphoniques à une enquête annuelle des dépenses d'exploration auprès des sociétés d'exploration minière et des groupes de prospecteurs. En janvier et février de chaque année, les sociétés et groupes sont priés de fournir une estimation de leur budget pour l'année en cours, réparti selon le produit de base recherché et la zone d'exploration. Depuis 1987, les sociétés doivent donner, en outre, leurs dépenses réelles de l'année précédente.

Bien qu'il y ait quelque 349 détenteurs inscrits de propriétés minières dans la province, entre 40 et 85 sociétés seulement (46 en 1991) financent des travaux d'exploration et forment le fondement de

l'enquête. Cependant, en raison de circonstances imprévues, les budgets peuvent varier considérablement au cours de l'année. Les dépenses réelles ont dépassé les estimations préliminaires en 1987 et 1988. Cette situation s'est renversée en 1989 et 1990, à la suite de la baisse d'intérêt envers les actions accréditives et de la chute des prix des métaux. Les dépenses d'exploration de 1986 à 1991, tirées de l'enquête des géologues résidents, figurent au tableau ci-dessous.

Le repli marqué des dépenses d'exploration minière en Saskatchewan depuis 1988 suit la tendance nationale. Au cours des dernières années, les petites sociétés ont éprouvé de plus en plus de difficultés à réunir des capitaux pour l'exploration et la mise en valeur. Il en découle que l'exploration a tendance à être davantage financée à même les fonds des grandes sociétés.

SASKATCHEWAN
Dépenses d'exploration - Enquête des géologues résidents
(en millions de dollars canadiens)

	<u>1986</u>	<u>1987</u>	<u>1987</u>	<u>1988</u>	<u>1988</u>	<u>1989</u>	<u>1989</u>	<u>1990</u>	<u>1990</u>	<u>1991</u>
		(int)	(fin)	(int)	(fin)	(int)	(fin)	(int)	(int)	(int)
Métaux précieux	19	34	48	55	55	32	22	13	11	6
Métaux communs	2	2	3	3	6	5	7	7	7	6
Uranium	22	18	18	44(1)	40(1)	47(1)	46(1)	43(1)	37(1)	38(1)
Autres	-	-	-	-	-	-	2	2	2	3
Total	43	54	69	102	101	84	77	65	57	53

int: intentions; fin: final

(1) comprend l'aménagement souterrain à Cigar Lake et les mines d'essais d'uranium à Midwest Lake.

La recherche de diamants se poursuit pour une troisième année. Quelque 80 sociétés et particuliers détiennent des claims dans le sud de la Saskatchewan, principalement dans la région s'étendant à l'est de Prince Albert. Les possibilités de découvertes rentables des gisements de diamants ne tiennent qu'à la spéculation à ce moment-ci, bien que le grand intérêt que suscitent les diamants et d'encourageants résultats d'exploration pourraient précipiter la découverte de tels gisements.

Dans l'ensemble, les dépenses d'exploration minière devraient continuer de chuter en Saskatchewan. L'estimation de 1991 est de 48 millions de dollars inférieure au sommet des 101 millions de dollars de dépenses d'exploration atteint en 1988, ce qui représente une chute de 47 pour cent.

4.9 Alberta

Les travaux de recherche de minéraux autres que le pétrole devraient ralentir légèrement en Alberta. Les dépenses devraient chuter à 7,1 millions de dollars, contre 7,6 millions de dollars (estimation) en 1990.

L'accent est encore mis sur l'exploration de charbon, le nombre de trous de forage d'exploration devant atteindre 876 en 1991, contre 723 en 1990 et 589 en 1989.

En 1990, plus des trois quarts des dépenses d'exploration autre que le pétrole ont été affectées au charbon. L'uranium s'est classé au deuxième rang, obtenant un peu moins de 20 % des dépenses totales. Le reste modeste des dépenses a été consacré à la recherche de métaux précieux, de non-métaux et de matériaux de construction. En 1990, d'importants droits miniers ont été accordés dans le nord-ouest de la province. Les permis d'exploration délivrés touchaient une superficie de 780 000 hectares. La valeur des travaux d'évaluation devrait atteindre environ 8 millions, dont 1 million a été dépensé en 1990.

La piètre performance de l'industrie minière aux prises avec une récession économique a rendu plus difficile dans l'ensemble le financement des travaux. Dans ce contexte, les caractéristiques uniques du financement par actions accréditives n'ont pas accru la capacité de l'industrie de réunir des capitaux. En 1990, les fonds réunis par actions accréditives ont continué à baisser, pour s'établir à environ 75 à 80 millions de dollars, contre environ 120 millions en 1989. Une faible partie de cette somme s'appliquait à l'exploration minière. En 1991, on s'attend à réunir environ la moitié des niveaux de 1990.

4.10 Colombie-Britannique

Le jalonnement de claims a connu une légère hausse par rapport à l'an dernier, passant de 97 328 en 1989 et 87 285 en 1988 à 98 256 en 1990. Même situation pour les travaux de forage au diamant: en effet, le nombre

de mètres forés s'est établi à 717 000 mètres en 1989 contre 683 000 en 1988. Les dépenses totales d'exploration, d'après les enquêtes préliminaires du gouvernement fédéral, sont estimées à 226 millions, en hausse de plus de 21 % par rapport au total définitif de 186 millions en 1989.

Les découvertes nouvelles ont été rares, étant donné que la majeure partie des travaux ont été axés aux environs de régions préférées telles la région de Sewart-Iskut River qui comprend Eskay Creek, et la zone nord de Quesnel qui comprend Mount Milligan.

La recherche de riches gisements en métaux précieux ou communs et la recherche de vastes gisements de métaux précieux ou communs à faible teneur, particulièrement de cuivre et or, ont dominé la scène. Les grandes sociétés se sont partagées une grande partie des dépenses de l'année, étant donné que les petites sociétés et les prospecteurs, les principaux découvreurs de mines de la province, ont dû ralentir leurs activités en raison de la fin du financement par actions accréditives. Le programme d'aide aux prospecteurs de la province a été réduit en 1991, ce qui pourrait ralentir encore davantage les travaux des prospecteurs en 1991 et dans les années subséquentes.

RÉPARTITION DES DÉPENSES D'EXPLORATION EN COLOMBIE-BRITANNIQUE SELON LE PRODUIT DE BASE

	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
	(en milliers de dollars)			
métaux précieux	36 793	15 126	161 992	116 166
métaux communs	8 623	114 952	22 633	27 610
fer	0	0	0	5
uranium	0	383	0	0
autres métaux	942	1 060	1 896	1 244
non-métaux	4 895	3 753	580	961
charbon	9 261	4 967	4 914	2 531
<u>non précisé</u>	<u>2 626</u>	<u>2 311</u>	<u>4 756</u>	<u>1 215</u>
Total	63 140	142 552	196 771	149 732

nota: L'exploration ne comprend pas le prolongement des gisements en cours d'extraction ou devant entrer en production. Travaux sur le terrain seulement, à l'exclusion des frais généraux.

La société Geddes Resources Ltd. a poursuivi l'exploration de son vaste gisement de cuivre et d'or Windy Craggy, dans le nord-ouest de la province, et a découvert une autre zone de cuivre.

Cominco Ltée et Redfern Resources Ltd. ont obtenu des résultats importants, dont une spectaculaire intersection de 50 mètres au gisement massif de sulfure Tulsequah Chief.

Cominco Ltée et Prime Resources Group Inc. ont entrepris l'exploitation du gisement d'or Snip, à un coût de 65 millions de dollars.

Corona Corporation et Prime Resources Group Inc. ont fait de grands progrès au riche gisement d'or, d'argent et de métaux communs Eskay Creek, interceptant en août une section spectaculaire de la zone 21B dans la rampe.

En novembre, Placer Dome Inc. a acquis le contrôle du vaste gisement de cuivre et d'or Mount Milligan, et après avoir poursuivi le forage, a procédé à une étude de faisabilité.

Imperial Metals Corporation et Corona Corporation ont achevé une étude favorable de faisabilité du gisement de cuivre et d'or Mt. Polley et ont conclu que le délai de récupération de ce projet de 131,5 millions serait de 3,6 années.

Curragh Resources Incorporated et Asturiana de Zinc (Espagne) proposent de mettre en valeur le gisement de plomb-zinc Stronsay (anciennement appelé Cirque) situé dans le nord-ouest de la Colombie-Britannique.

Crowsnest Resources Limited a continué d'examiner les possibilités d'exploiter une nouvelle mine de charbon thermique, d'une capacité de 800 000 tonnes par année, à Telkwa, près de Smithers (Colombie-Britannique); cependant, ce projet a encore été mis en veilleuse.

Les Charbons Fording, Limitée ont reçu une approbation en principe pour prolonger la fosse Henrietta Dragline à la mine Elkford, dans le sud-est de la province.

Tous les grands projets, tels que Windy Craggy, Eskay Creek, Mt. Milligan et Stronsay, en sont à la première étape du processus d'étude de l'exploitation minière. Mount Polley en est à la deuxième étape du processus et devrait recevoir l'approbation en principe avant la fin de 1991.

4.11 Territoires du Nord-Ouest

En 1990, les Territoires du Nord-Ouest se sont classés au cinquième rang au chapitre de la production de minéraux métalliques au Canada, fournissant 5,9 % du total. Les expéditions de métaux ont été évaluées à 881 millions de dollars, en hausse de 9,1 % par rapport aux 805 millions enregistrés en 1988. Les données de 1989 révèlent que le secteur minier a assuré 36 % du produit territorial brut. En 1990, les Territoires du Nord-Ouest ont produit 24,7 % du zinc du Canada, 17 % de son plomb, 9,1 % de son or, 16,6 % de son cadmium et 2,1 % de son argent.

Environ 60 % des 2 200 emplois du secteur minier des Territoires du Nord-Ouest sont occupés par des résidents. La participation des autochtones du Nord est passée à environ 12 % des emplois, grâce aux efforts déployés par l'industrie et les collectivités. Le secteur minier a versé 123 millions ou 13 % de tous les salaires versés dans les Territoires du Nord-Ouest en 1989.

Les modifications apportées aux lois régissant les actions accréditives et le Programme de stimulation de l'exploration minière au Canada (PSEMC) ont atténué l'intérêt suscité par les placements dans le domaine de l'exploration. Ces changements, conjugués à la baisse des prix de l'or, à la force du dollar canadien et aux taux d'intérêt élevés, ont entraîné la chute des fonds disponibles pour l'exploration. Les dépenses d'exploration minière dans les Territoires du Nord-Ouest sont passées de 112 millions en 1988 à 55 millions en 1989 et à 38 millions en 1990. Le nombre total de claims en règle a diminué depuis le début des années 80. En 1990, les claims inscrits touchaient une superficie de 355 345 hectares, 563 548 hectares étant abandonnés. Les claims en règle couvraient 2 947 349 hectares, contre 4 256 528 hectares en 1980. La part des dépenses totales d'exploration effectuées dans les Territoires du Nord-Ouest en 1988, 1989 et 1990 est demeurée constante à environ 5,2 % du total canadien.

Parmi les projets d'exploration avancés, notons:

La coentreprise de George Lake - (Homestake Mining Company Ltd. et Kerr-McGee Corporation) a recherché de l'or à 525 kilomètres au nord-est de Yellowknife. Elle compte effectuer 24 000 autres mètres de forage au diamant en 1991.

BHP-Utah Mines Ltd. - a poursuivi ses travaux à la propriété d'or Uku, située à 550 kilomètres au nord de Yellowknife. La société projette d'effectuer 15 000 mètres de forage au diamant en 1991.

Athabaska Gold Res. et Chevron Minerals Ltd. - ont défini 557 000 tonnes titrant 12,3 grammes la tonne d'or dans le gisement de Nicholas Lake, à 75 kilomètres au nord de Yellowknife.

En 1990, la **NorthWest Gold Corp.** a entrepris l'exploitation de la mine Colomac, vaste mine à ciel ouvert située à 200 kilomètres au nord de Yellowknife (la mine a interrompu temporairement ses activités en juillet 1991). La mine Giant de Yellowknife a été acquise par **Royal Oak Resources**. La **Nerco Con Mines Ltd.** a réhabilité un des puits et a augmenté la capacité de l'usine à sa mine Con Mine de Yellowknife. La société prévoit de construire un circuit en autoclave à côté du circuit existant, au coût de 19,4 millions. Le procédé d'oxydation sous pression permettra de récupérer l'or des déchets miniers existants et de traiter le minerai réfractaire. La mine Lupin, à 400 kilomètres de Yellowknife, a fait l'objet de construction d'infrastructures internes et de développement pour accéder aux réserves plus profondes. La mise en valeur de la propriété Kiggavik, à 100 kilomètres à l'ouest de Baker Lake, est interrompue en attendant l'achèvement de l'examen environnemental fédéral.

4.12 Yukon

En 1991, les dépenses d'exploration effectuées par les petites sociétés devraient demeurer très faibles. Cette situation peut être attribuable à la difficulté constante qu'éprouvent ces sociétés à réunir des capitaux de risque, en raison du faible cours des actions, des taux d'intérêt élevés, de la baisse du prix de l'or et de l'argent et de l'abolition de la déduction pour épuisement gagné et du Programme de stimulation de l'exploration minière au Canada.

Les grandes sociétés portent depuis un certain temps un intérêt croissant envers l'exploration des métaux communs, et les dépenses à ce chapitre devraient être égales ou légèrement supérieures à celles de l'an dernier. **Curragh Resources Inc.** devrait commencer à expédier des concentrés avant la fin de juillet 1991 à partir de son projet Mount Hundere.

Un sentiment d'incertitude règne actuellement dans l'industrie au sujet des modifications législatives et réglementaires proposées, plus particulièrement en rapport avec la revendication foncière des Indiens du Yukon. Cependant, les travaux de prospection des particuliers demeurent à un niveau élevé, et il ne semble pas évident qu'une petite ou grande société quelconque ait modifié ses projets d'exploration à cause de cette incertitude.

Une enquête effectuée par le MAINC à la fin de 1990 a révélé que les dépenses réelles au Yukon en 1990 ne se chiffraient qu'à environ 11 millions de dollars. Une autre enquête réalisée par la Chambre des mines du Yukon en août 1991 a fait ressortir que les dépenses en 1991 pourraient être légèrement supérieures, soit 14 à 15 millions de dollars. Ces chiffres sont beaucoup plus bas que l'estimation préliminaire de 1990 et la prévision pour 1991 figurant au tableau 3a, ce qui laisse supposer que les dépenses réelles ont baissé considérablement sous le niveau signalé dans l'enquête sur les intentions.

PARTIE C. ANALYSE RÉTROSPECTIVE DES TRAVAUX D'EXPLORATION MINIÈRE AU COURS DES DERNIÈRES ANNÉES

5.1 Introduction

La présente partie brosse un tableau de diverses facettes de l'exploration minière au cours des dernières années. Elle donne également la répartition des dépenses d'exploration par région, par produit de base et par catégorie de société. Les niveaux des travaux d'exploration de 1990 et 1991 sont décrits respectivement de façon préliminaire et prévisionnelle. Les données s'appliquant à ces deux années ont été recueillies entre décembre 1990 et mars 1991.

5.2 Dépenses d'exploration par région

Les tableaux 3a, 3b et 4 sont tirés de l'enquête fédérale-provinciale sur les sociétés d'exploration et d'exploitation.

Le tableau 3a illustre, en dollars courants, les dépenses d'exploration minière au Canada par province entre 1985 et 1991. Le tableau 3b donne les mêmes résultats, mais en dollars de 1990. Les chiffres se rapportant aux «travaux sur le terrain» ne comprennent pas les frais généraux. Le tableau 4 montre la répartition relative en pourcentage de ces mêmes données.

Jusqu'en 1989, les régions les plus explorées ont été l'Ontario et le Québec, qui en 1988 se partageaient 58 pour cent des dépenses totales engagées au Canada. En 1988 et 1989, les dépenses en Ontario ont dépassé pour la première fois depuis 1977 celles du Québec. Les dépenses d'exploration en Colombie-Britannique, en pourcentage du total canadien, ont augmenté rapidement au cours de la deuxième moitié des années 80, et en 1989 elles se comparaient à celles engagées au Québec. En 1990 et 1991, les dépenses d'exploration en Colombie-Britannique devraient dépasser celles enregistrées au Québec et en Ontario pour la première fois depuis 1981. En fait, selon les indications, les dépenses en Ontario en 1990 auraient chuté de 35 % par rapport à 1989, laissant cette province au troisième rang. L'Ontario devrait conserver cette place en 1991. Les dépenses totales d'exploration au pays devraient chuter de 9 % en 1990 par rapport à 1989 et de 14 % en 1991.

Tableau 3a. Dépenses d'exploration minière au Canada, par province, 1985 à 1991 (en millions de dollars courants)

Province	1985	1986	1987	1988	1989	1990ep	1991p
	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Exploration totale (1)	Exploration totale (1)	Exploration totale (1)
Terre-Neuve	11.9	12.3	27.7	37.7	36.2	23.6	16.8
Nouvelle-Écosse	7.8	17.2	41.6	46.7	21.4	8.7	9.2
Nouveau-Brunswick	12.1	10.8	9.1	13.8	13.6	18.5	21.7
Québec	135.2	241.4	415.5	328.2	185.0	175.7	150.7
Ontario	93.2	136.8	308.1	343.6	217.8	141.2	123.8
Manitoba	33.7	26.3	40.0	30.0	37.0	36.6	35.0
Saskatchewan	39.4	36.8	63.5	61.1	63.3	57.6	51.3
Alberta	14.7	3.0	2.5	4.3	6.2	7.6	7.1
Colombie-Britannique	73.0	63.1	142.6	196.8	186.6	226.3	166.8
Yukon	22.7	27.9	29.0	38.6	15.1	22.1	27.0
Territoires du Nord-Ouest	46.8	35.8	59.0	66.5	45.7	33.2	36.7

Total des travaux

sur le terrain						nd	nd
(sauf frais généraux)	490.5	611.4	1 138.6	1 167.3	703.5		
total de l'exploration (1)							
(y compris les frais généraux)	605.8	723.3	1 300.0	1 350.0	827.9	751.2	646.2

Sources: Enquête fédérale-provinciale des dépenses sur le terrain, de 1985 à 1989; l'estimation préliminaire de 1990 et la prévision pour 1991 sont tirées des enquêtes fédérales-provinciales coordonnées par Statistique Canada et EMR.

(1) Nota: l'"exploration totale" comprend les frais généraux connexes; pour les années 1985 à 1988, les totaux avec frais généraux ont été obtenus en multipliant les dépenses sur le terrain de l'enquête fédérale-provinciale par le rapport total/dépenses sur le terrain de Statistique Canada.

ep estimation préliminaire; p prévision; nd non disponible.

Les totaux peuvent ne pas être exacts en raison de l'arrondissement.

Tableau 3b. Dépenses d'exploration minière au Canada, par province, 1985 à 1991 (en millions de dollars de 1990)

Province	1985			1986			1987			1988			1989			1990ep			1991p		
	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Travaux sur le terrain seulement	Exploration totale (1)	Exploration totale (1)	Exploration totale (1)	Exploration totale (1)	Exploration totale (1)	Exploration totale (1)	Exploration totale (1)	Exploration totale (1)	Exploration totale (1)
Terre-Neuve	14.4	14.6	31.3	40.7	37.3	23.6	16.2														
Nouvelle-Écosse	9.5	20.4	47.0	50.4	22.0	8.7	8.9														
Nouveau-Brunswick	14.7	12.8	10.3	14.9	14.0	18.5	20.9														
Québec	163.9	285.7	469.5	354.0	190.5	175.7	145.2														
Ontario	113.0	161.9	348.1	370.7	224.3	141.2	119.3														
Manitoba	40.8	31.1	45.2	32.4	38.1	36.6	33.7														
Saskatchewan	47.8	43.6	71.8	65.9	65.2	57.6	49.4														
Alberta	17.8	3.6	2.8	4.6	6.4	7.6	6.8														
Colombie-Britannique	88.5	74.7	161.1	212.3	192.2	226.3	160.7														
Yukon	27.5	33.0	32.8	41.6	15.6	22.1	26.0														
Territoires du Nord-Ouest	56.7	42.4	66.7	71.7	47.1	33.2	35.4														
Total des travaux sur le terrain (sauf frais généraux)	594.5	723.6	1 286.6	1 259.2	724.5	nd	nd														
Total de l'exploration (y compris les frais généraux)	734.3	856.0	1 468.9	1 456.3	852.6	751.2	622.5														

Sources: Enquête fédérale-provinciale des dépenses sur le terrain, de 1985 à 1989; l'estimation préliminaire de 1990 et la prévision pour 1991 sont tirées des enquêtes fédérales-provinciales coordonnées par Statistique Canada et EMR.

(1) Nota: l'"exploration totale" comprend les frais généraux connexes; pour les années 1985 à 1988, les totaux avec frais généraux ont été obtenus en multipliant les dépenses sur le terrain de l'enquête fédérale-provinciale par le rapport total/dépenses sur le terrain de Statistique Canada.

ep estimation préliminaire; p prévision; nd non disponible.

Les totaux peuvent ne pas être exacts en raison de l'arrondissement.

Tableau 4. Dépenses d'exploration minière au Canada, par province, 1985-1991

Province	1985					1986					1987					1988					1989					1990ep					1991p				
	Travaux sur le terrain					Travaux sur le terrain					Travaux sur le terrain					Travaux sur le terrain					Total					Total					Total				
	pourcentage					pourcentage					pourcentage					pourcentage					pourcentage					pourcentage					pourcentage				
Terre-Neuve	2.4					2.0					2.4					3.2					4.4					3.1					2.6				
Nouvelle-Écosse	1.6					2.8					3.7					4.0					2.6					1.2					1.4				
Nouveau-Brunswick	2.5					1.8					0.8					1.2					1.6					2.5					3.4				
Québec	27.6					39.5					36.5					28.1					22.3					23.4					23.3				
Ontario	19.0					22.4					27.1					29.4					26.3					18.8					19.2				
Manitoba	6.9					4.3					3.5					2.6					4.5					4.9					5.4				
Saskatchewan	8.0					6.0					5.6					5.2					7.6					7.7					7.9				
Alberta	3.0					0.5					0.2					0.4					0.8					1.0					1.1				
Colombie-Britannique	14.9					10.3					12.5					16.9					22.5					30.1					25.8				
Yukon	4.6					4.6					2.5					3.3					1.8					2.9					4.2				
Territoires du Nord-Ouest	9.5					5.9					5.2					5.7					5.5					4.4					5.7				
Total pays	100.0					100.0					100.0					100.0					100.0					100.0					100.0				

Sources: Enquête fédérale-provinciale des dépenses sur le terrain, de 1985 à 1989; l'estimation préliminaire de 1990 et la prévision pour 1991 sont tirées des enquêtes fédérales-provinciales coordonnées par Statistique Canada et EMR.
ep estimation préliminaire; p prévision.

Nota: De 1985 à 1988, les pourcentages sont calculés d'après les travaux sur le terrain seulement; pour 1989, 1990 et 1991, ils le sont d'après les dépenses totales qui comprennent les frais généraux connexes.

En 1989, les dépenses d'exploration par rapport à 1988 étaient à la baisse dans toutes les provinces sauf le Manitoba, même si le déclin cette année-là en Alberta était insignifiant. En 1990, les totaux préliminaires laissent supposer que les dépenses ont connu une hausse par rapport à 1989 en Colombie-Britannique, au Yukon, en Alberta et au Nouveau-Brunswick et une baisse dans toutes les autres provinces, particulièrement en Nouvelle-Écosse, où les dépenses d'exploration en 1990 ont diminué de 60 % par rapport à 1989. Les intentions pour 1991 révèlent qu'une augmentation des dépenses devrait se faire sentir par rapport à 1990 au Yukon et dans les Territoires du Nord-Ouest, au Nouveau-Brunswick et en Nouvelle-Écosse.

5.3 Dépenses d'exploration par catégorie de société

La figure 8a illustre les dépenses d'exploration de 1985 à 1989 par catégorie de société. Ce genre de données n'est pas encore disponible pour 1990 et 1991; ces années n'y figurent donc pas. Les dépenses totales d'exploration (travaux sur le terrain et frais généraux) pour les années 1989, 1990 (préliminaire) et 1991 (intentions) sont montrées à la figure 8b. Les données sur les travaux sur le terrain et les frais généraux totaux ne sont pas disponibles pour les années 1985 à 1989; ces années sont donc exclues de la figure 8b.

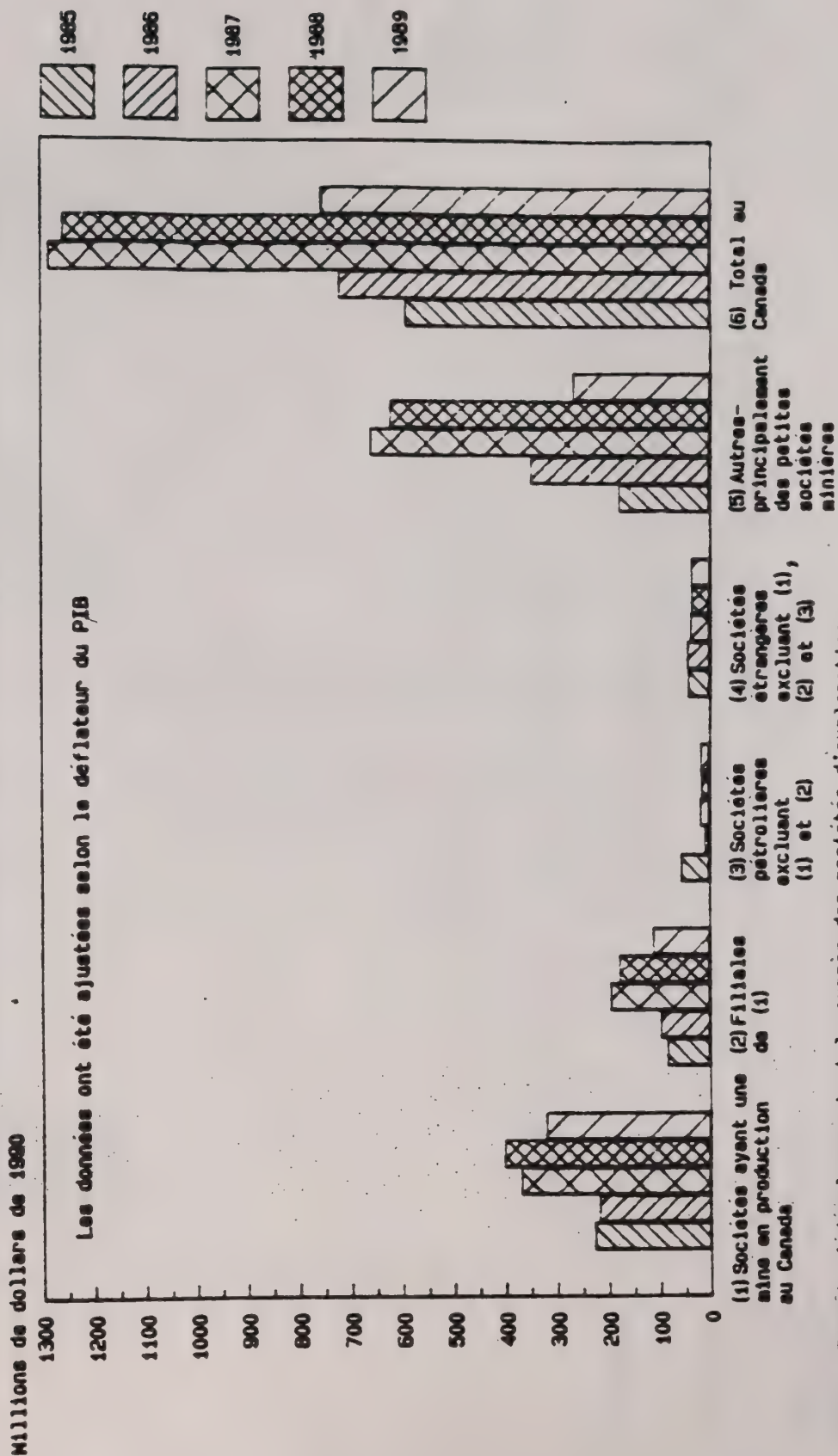
Entre 1985 et 1991, les travaux d'exploration de minéraux non pétrolifères par les sociétés pétrolières ont chuté, en dollars constants, de plus de 60 %, ceux des sociétés étrangères connaissant une baisse de plus de 70 %.

L'exploration par les sociétés productrices et leurs sociétés affiliées a culminé en 1987-1988 et semble avoir décliné de façon modérée depuis. Ce déclin peut en fait traduire la baisse des contributions des petites sociétés aux projets en coentreprise exploités par les grandes sociétés. Les dépenses de cette nature sont signalées dans leur totalité par les exploitants de projets (la plupart du temps des grandes sociétés).

La figure 9 montre les dépenses d'exploration en dollars courants pour la période allant de 1983 à 1991. La figure 10 illustre les dépenses d'exploration au Canada en dollars de 1990 entre 1969 et 1991. De 1983 à 1987, les dépenses d'exploration des petites sociétés ont presque décuplé, passant d'environ 71 millions de dollars en 1983 à près de 700 millions en 1987. Les dépenses des petites sociétés, qui en 1983 se partageaient environ 15 % des dépenses totales, sont passées à plus des deux tiers du total. En 1988, les dépenses des petites sociétés ont commencé à diminuer.

Figure 8a

DÉPENSES D'EXPLORATION AU CANADA (TRAVAUX SUR LE TERRAIN SEULEMENT) PAR CATÉGORIE DE SOCIÉTÉ - 1985 À 1989

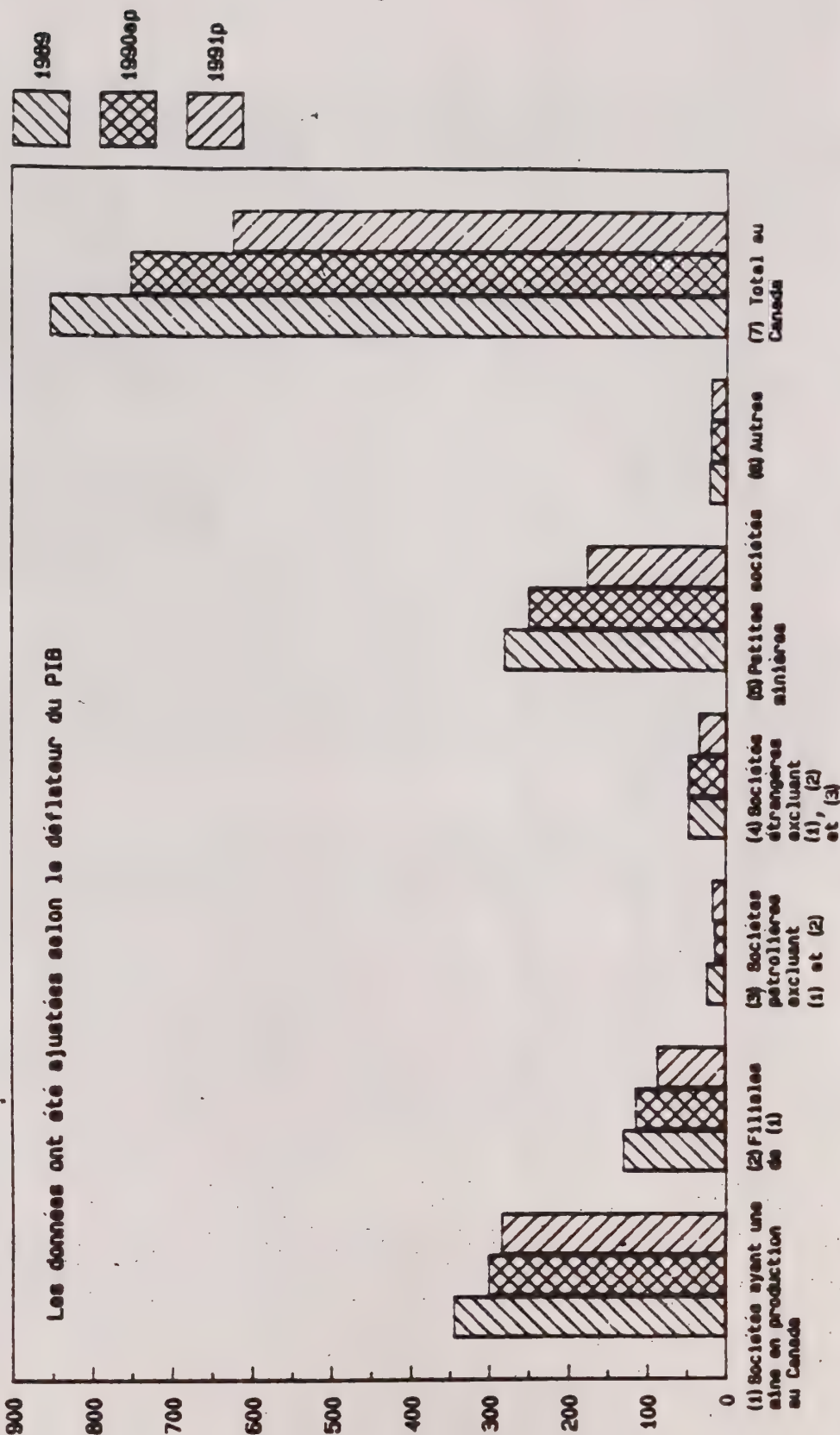


Source: Enquête fédérale-provinciale auprès des sociétés d'exploration et d'exploitation minière.
Note: Les dépenses ne comprennent pas les frais généraux.

Figure 8b

DÉPENSES D'EXPLORATION AU CANADA (TRAVAUX SUR LE TERRAIN PLUS FRAIS GÉNÉRAUX) PAR CATÉGORIE DE SOCIÉTÉ, 1989, ESTIMATION PRÉLIMINAIRE POUR 1990 ET PRÉVISION POUR 1991

Millions de dollars de 1990

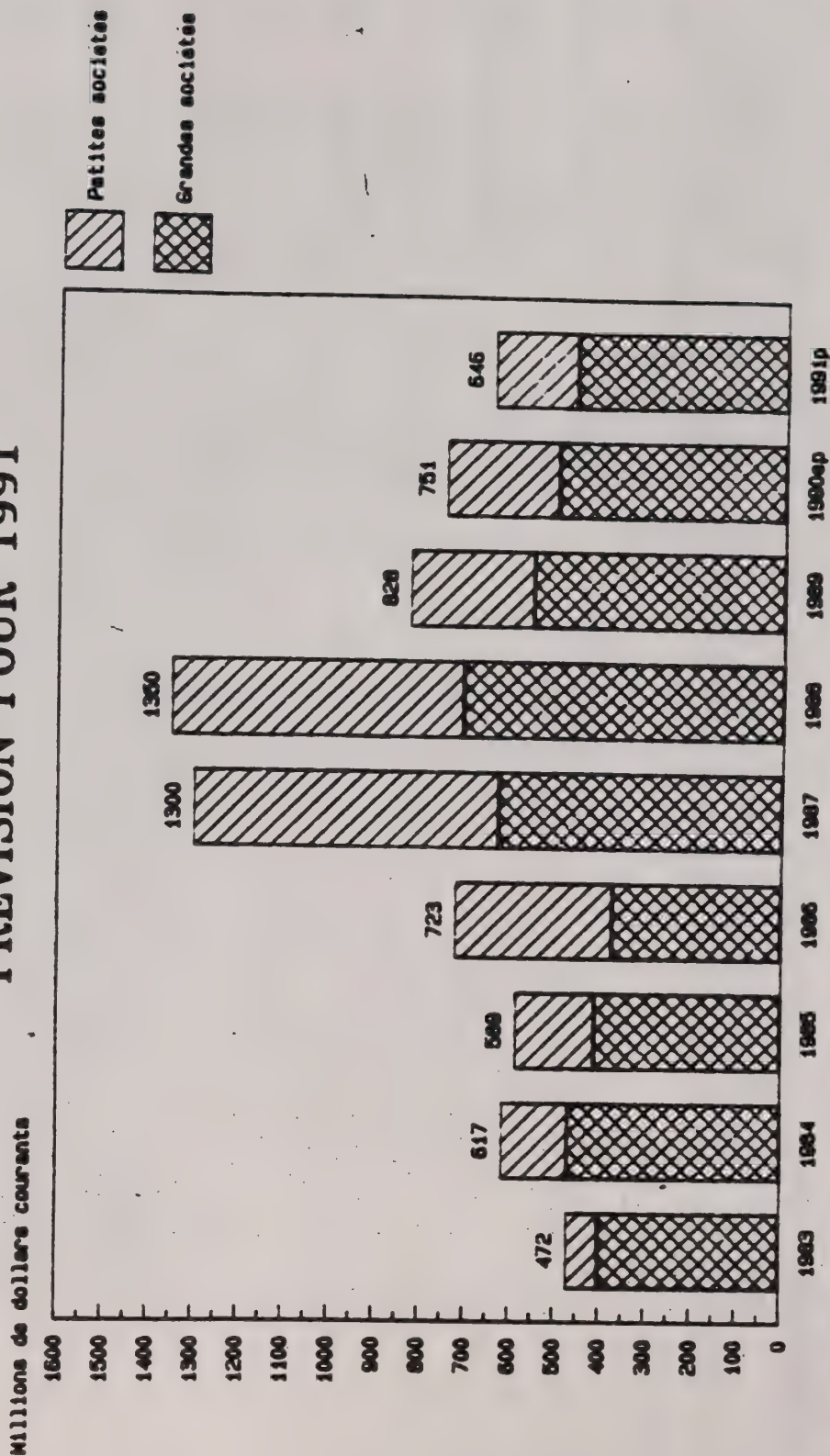


Source: Pour l'année 1989, l'enquête fédérale-provinciale auprès des sociétés d'exploration et d'exploitation minière.
ep : estimation préliminaire; p : prévision.

Note: Les dépenses comprennent les frais généraux.

Figure 9

DÉPENSES TOTALES D'EXPLORATION DE 1983 À 1989 ESTIMATION PRÉLIMINAIRE POUR 1990 ET PRÉVISION POUR 1991

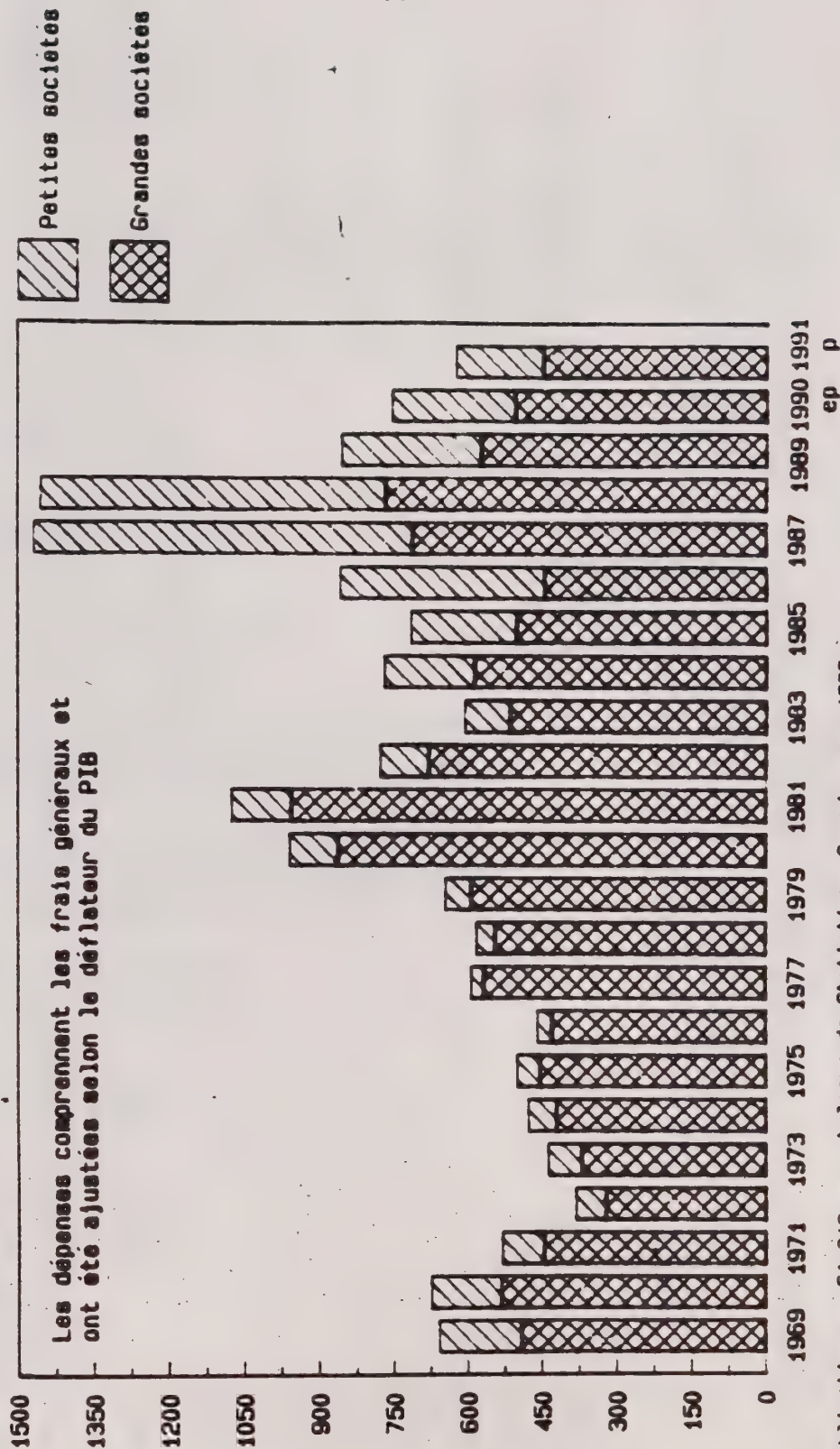


Sources: publication no 61-216 au catalogue de Statistique Canada pour 1983 à 1985; pour 1986 à 1988, les dépenses sur le terrain tirées de l'enquête fédérale-provinciale ont été multipliées par le rapport total/dépenses sur le terrain de Statistique Canada. L'estimation préliminaire de 1990 et la prévision pour 1991 proviennent des enquêtes fédérales-provinciales coordonnées par Statistique Canada et EMI.
ep estimation préliminaire; p prévision.

Figure 10

DÉPENSES TOTALES D'EXPLORATION DE 1969 À 1989, RÉPARTITION DES DÉPENSES ENTRE LES PETITES ET LES GRANDES SOCIÉTÉS; ESTIMATION PRÉLIMINAIRE POUR 1990 ET PRÉVISION POUR 1991

Millions de dollars de 1990



Sources: publication no 61-216 au catalogue de Statistique Canada pour 1983 à 1985; pour 1986 à 1988, les dépenses sur le terrain tirées de l'enquête fédérale provinciale ont été multipliées par le rapport total/dépenses sur le terrain de Statistique Canada. L'estimation préliminaire de 1990 et la prévision pour 1991 proviennent des enquêtes fédérales-provinciales coordonnées par Statistique Canada. EWR.
ep est l'estimation préliminaire; p prévision.

Cette tendance semble s'être poursuivie en 1989, 1990 et 1991.

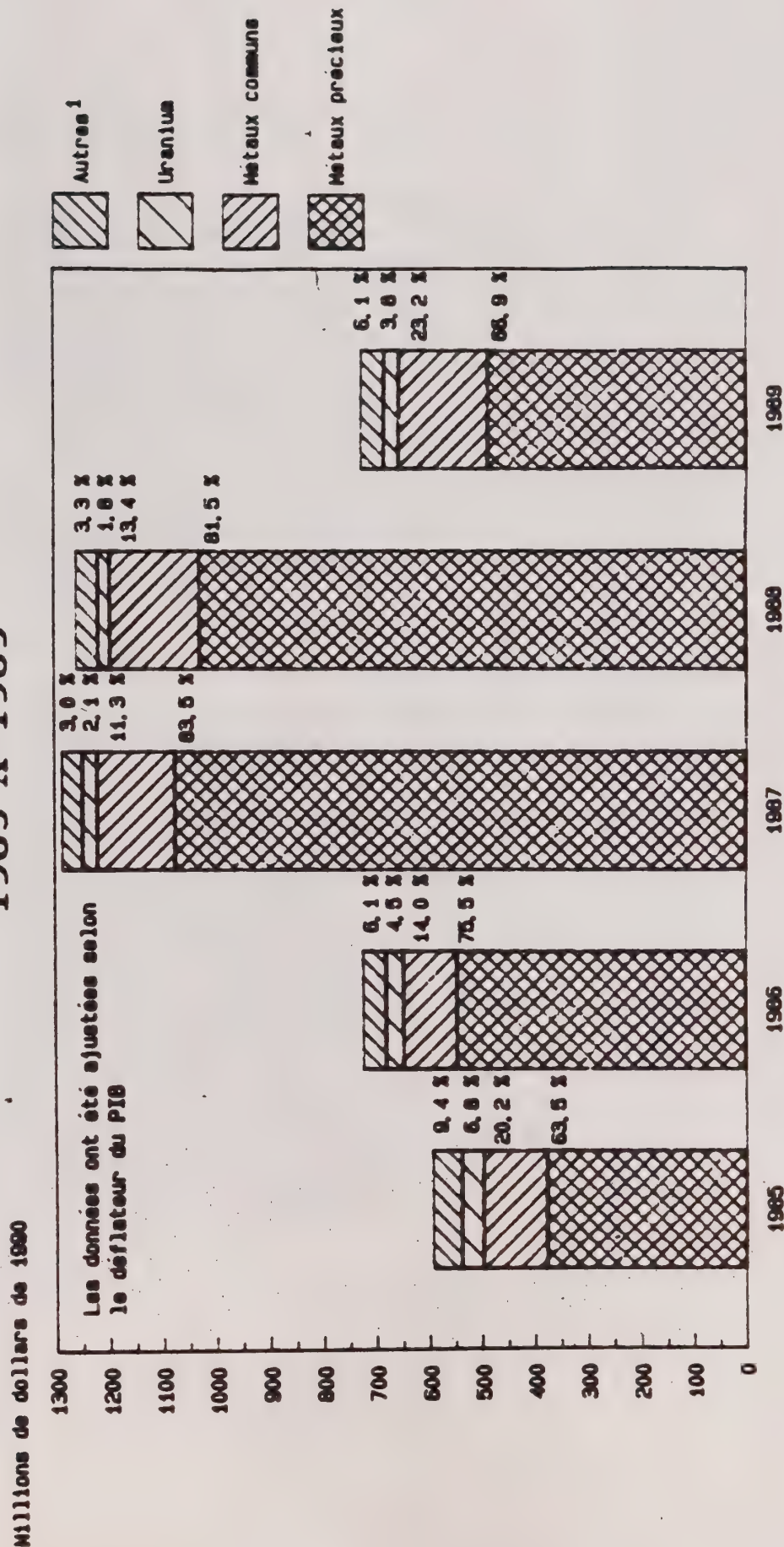
Le fait que les petites sociétés aient assuré environ les deux tiers des dépenses totales d'exploration au Canada en 1987 et 1988 ne ressort pas dans les histogrammes et peut s'expliquer de la façon suivante. À partir de 1984, les petites sociétés ont injecté des sommes considérables pour des projets d'exploration en coparticipation exploités par des grandes sociétés. Étant donné que les enquêtes demandent que les dépenses d'exploration engagées au Canada soient signalées par les exploitants de projet, et étant donné que les grandes sociétés n'ont pas en général versé de fortes sommes aux projets exploités par les petites sociétés, les enquêtes sur l'exploration ont eu tendance à surestimer la contribution des grandes sociétés et à sous-estimer celle des petites aux dépenses d'exploration au milieu des années 80.

5.4 Dépenses d'exploration par catégorie de produits de base

La figure 11 montre la répartition des dépenses totales d'exploration au Canada selon le produit ou groupe de produits recherchés et l'évolution de cette répartition entre 1985 et 1989. Elle illustre de plus la réorientation des dépenses selon le minéral recherché. En 1988, 82 % des dépenses au Canada étaient consacrées à la recherche de métaux précieux (l'or, selon les estimations, accaparant 95 % de ce chiffre), 13 % aux métaux communs, 2 % à l'uranium et 3 % aux autres métaux et minéraux, y compris le charbon. En 1989, la proportion des dépenses nationales consacrées aux métaux précieux a baissé considérablement et celle touchant la recherche de métaux communs a augmenté, métaux précieux, 67 % et métaux communs, 23 %. En dollars courants, les dépenses d'exploration des métaux précieux en 1989 ne représentaient que la moitié de celles de 1988, les sommes affectées à la recherche de métaux communs demeurant à peu près au même niveau. En pourcentage, l'uranium a représenté 4 % des dépenses totales en 1989, et les autres métaux et minéraux, y compris le charbon, 6 %.

Figure 11

DÉPENSES D'EXPLORATION AU CANADA RÉPARTITION SELON LES PRODUITS DE BASE 1985 À 1989



Source: Enquête fédérale-provinciale auprès des sociétés d'exploration et d'exploitation minière.

Note: Les dépenses ne comprennent pas les frais généraux.

**PARTIE D. ANALYSE RÉTROSPECTIVE DU FINANCEMENT PAR ACTIONS
ACCREDITIVES, 1983 À 1991**

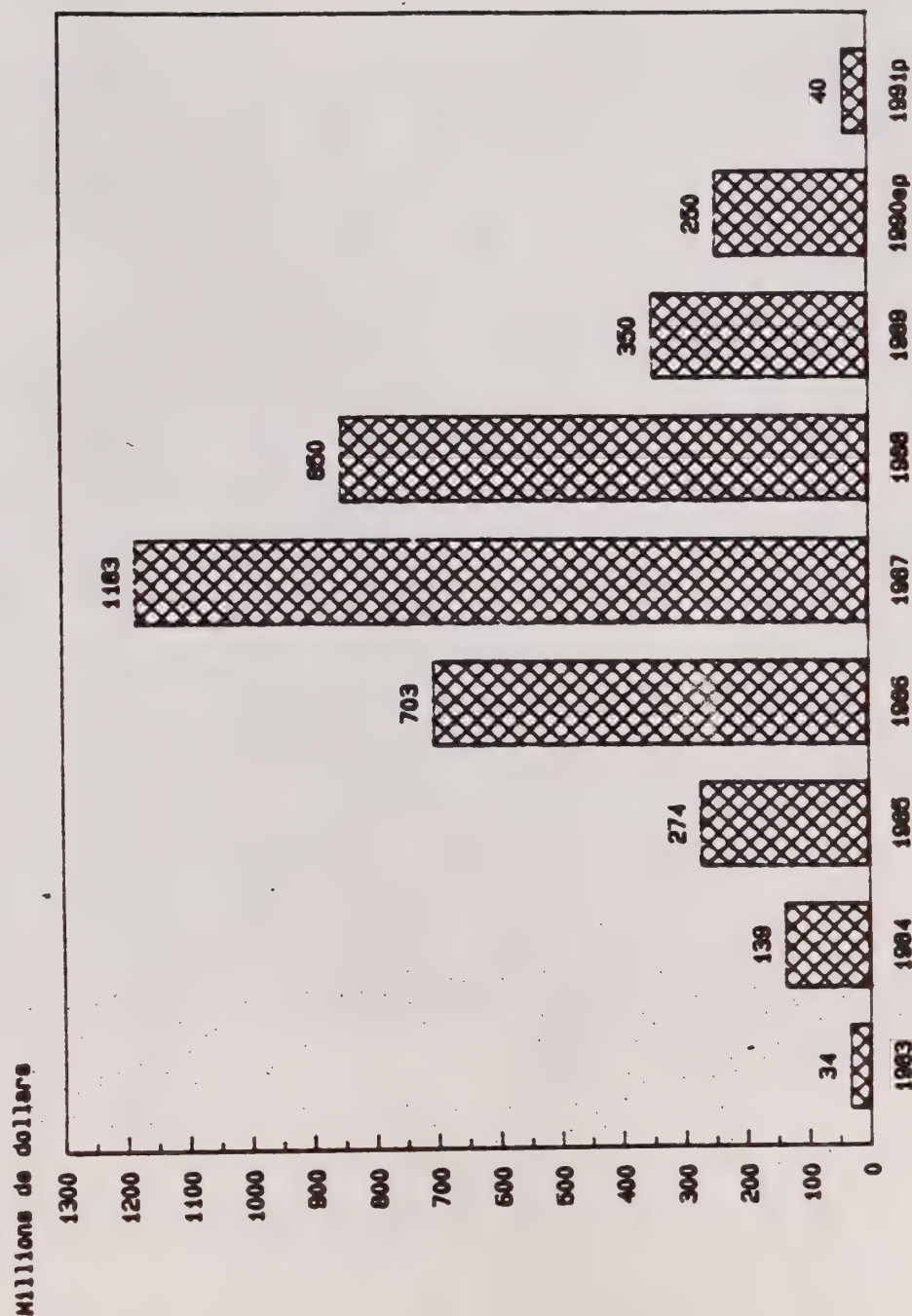
La figure 12 illustre l'évolution des actions accreditives comme source de financement de l'exploration. Les fonds réunis au moyen d'actions accreditives ont culminé à 1 183 millions de dollars en 1987.

La proportion des dépenses d'exploration financées par actions accreditives est passée d'environ 7 % en 1983 à plus de 90 % en 1986 et 1987. Cependant, en 1988 cette proportion a chuté à environ 60 % des dépenses totales, en raison principalement de la participation plus faible des grandes sociétés sur le marché des actions accreditives. Cette tendance à la baisse s'est poursuivie en 1989 et 1990 et se poursuivra en 1991 (voir le tableau 5).

Cependant, il convient de souligner que les dépenses d'exploration et les fonds réunis par actions accreditives ne peuvent de façon réaliste être comparés directement. Les données sur l'exploration sont compilées selon l'année civile, les fonds accreditifs, eux, sont compilés selon l'année d'imposition. Depuis 1986, les données englobent les fonds réunis devant être utilisés en janvier et février de l'année suivante, soit la fameuse «règle des 60 jours». Par exemple, une certaine partie des fonds réunis en 1987 a été utilisée au début de 1988.

Parallèlement à cet accroissement du financement par actions accreditives, il s'est produit une hausse de la proportion des travaux d'exploration entrepris par les petites sociétés minières. Ce sont les petites sociétés qui ont eu le plus recours aux actions accreditives en 1987 et en 1988. En 1988, on estime que près de 80 % des fonds réunis par actions accreditives l'ont été par ces petites sociétés. Cependant, comme nous le soulignons précédemment dans le rapport, même si elles sont, et de loin, à l'origine de la majeure partie des travaux d'exploration financés par actions accreditives, il n'en demeure pas moins que ce sont principalement elles qui ont le plus souffert du choc de la réduction des niveaux du financement accreditif depuis 1989.

Figure 12
NIVEAUX DU FINANCEMENT PAR ACTIONS ACCRÉDITIVES
1983 À 1991



Source: Énergie, Mines et Ressources Canada.
ep estimation préliminaire; p prévision en date du 1^{er} juillet 1991.

Tableau 5. Rapport entre le financement par actions accréditives et les dépenses totales d'exploration, 1983 à 1991

Année	Dépenses totales d'exploration (en millions de dollars)	Financement accréditif (en millions de dollars)	Financement accréditif par rapport aux dépenses totales d'exploration
1983	472	34	7 %
1984	617	139	23 %
1985	589	274	47 %
1986	698	703	100 %
1987	1 300	1 183	95 %
1988	1 350	850	63 %
1989	828	350	42 %
1990pr	750	250	33 %
1991pr	530-850	40	7 %

pr: préliminaire; p: prévision

À partir de 1986, une certaine partie des fonds accréditifs ont été effectivement dépensés en janvier et février de l'année suivante (la «règle des 60 jours»). Entre 1983 à 1990 inclusivement, les actions accréditives auront permis de réunir quelque 57 % des dépenses totales d'exploration autre que le pétrole au Canada.

48TH ANNUAL MINES MINISTERS' CONFERENCE

**Brief for the
48th Mines Ministers' Conference**

Canadian Geoscience Council

**HALIFAX, Nova Scotia
September 22-24, 1991**

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Canadian Geoscience Council Conseil Géoscientifique Canadien

Department of Earth Sciences, University of Waterloo, Waterloo, Ontario N2L 3G1

MISSION STATEMENT

The Canadian Geoscience Council provides an open forum for communication, discussion and debate to ensure the effectiveness and influence of the geosciences in addressing the needs and desires of the people of Canada, especially with regard to the quality of life, economic prosperity and the maintenance and improvement of the natural environment.

The Canadian Geoscience Council:

advises the general public on matters of significance to Canada and to the world that involve geoscience and geoscientists, in particular,

by identifying national interests and concerns that need constructive advice from geoscience,

by disseminating geoscientific information and advice on national and regional issues and concerns,

by acting as a catalyst to increase appropriate endeavours by the national scientific and technical societies and associations;

provides expert advice to governments at the federal and provincial level,

by commenting on legislation and programs that affect the earth and environmental sciences,

by advising on legislation to licence professional geoscientists and to accredit programs of qualification,

on request, by appointing and monitoring teams of experts to assess government programs;

promotes scientific awareness and education in Canada and encourages talented young Canadians to consider careers in the earth sciences;

organizes Canadian participation in nongovernmental global cooperative programs in the earth sciences;

provides an accountability and reporting centre for major cooperative geoscience projects in Canada and for Canadian contributions to similar international projects.

The Canadian Geoscience Council is a focal point for coordination and communication of the earth sciences in Canada and for Canadian participation in international geoscientific cooperation. The Council serves the national and regional interests of all Canadians and serves the specialized disciplines of earth science practised by some 16,000 scientists in Canada. The Council represents these scientists by means of its membership of delegates from the national scientific and technical societies in the earth sciences, scientists from industry, from the universities and from government agencies concerned with the geoscience of the natural environment of Canada and of its mineral, energy and water resources.

Association of Exploration
Geochemists
L'Association des
Géochimistes d'Explora-
tion, Section canadienne

Canadian Exploration
Geophysical Society
La Société canadienne
des Géophysiciens
d'Exploration

Canadian Geophysical
Union
L'Union canadienne de
Géophysique

Canadian Geotechnical
Society
La Société canadienne
de Géotechnique

Canadian Institute of
Mining and Metallurgy
L'Institut canadien des
Mines et de la
Métallurgie

Canadian Quaternary
Association
L'Association canadienne
pour l'étude du
Quaternaire

Canadian National
Chapter of International
Association of
Hydrogeologists
Chapitre national canadien
de l'Association internationale
des Hydrogéologues

Canadian Society of
Exploration Geophysicists
La Société canadienne
d'Exploration
géophysique

Canadian Society of
Petroleum Geologists
La Société canadienne
de Géologues du Pétrole

Canadian Well Logging
Society
L'Association canadienne
des sondeurs de puits

Geological Association of
Canada
L'Association géologique
du Canada

Mineralogical Association
of Canada
L'Association miné-
rologique du Canada

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of Geographers
L'Association canadienne
des Géographes

President
Dr. Brian S. Norford
Bus. (403) 292-7000
FAX (403) 292-5377

Vice-President
Dr. Jacques E. Locat
Bus. (418) 656-2179
FAX (418) 656-2603

Executive Director
Dr. Ash V. Morgan
Bus. (613) 995-4941
FAX (519) 746-2543

Treasurer
Dr. Eileen Van der Pijl-Keller
Bus. (604) 721-7340
FAX (604) 721-7212

Foreign Secretary
Dr. James M. Hall
Bus. (902) 424-5510
FAX (902) 424-3877

Past President
Mr. Donald K. Mustard
Bus. (604) 926-2144
FAX (604) 925-1221

Executive Member
Dr. Don W. Pollock
Bus. (902) 864-3070
FAX (902) 854-4499

Executive Member
Mr. Clay Riddell
Bus. (403) 266-2047
FAX (403) 262-7994



FORTY-EIGHTH MINES MINISTERS' CONFERENCE
Halifax, Nova Scotia, September 22-25, 1991

Brief submitted by the Canadian Geoscience Council

The Canadian Geoscience Council represents the scientific and technical societies in the earth sciences and is a focal point for coordination and communication of the geosciences in Canada. Through its member societies, the Council represents about 16,000 scientists of diverse disciplines and thus has an abundance of expertise available. The Canadian Geoscience Council values highly its traditional cooperative relationships with Mines and Energy Ministers across Canada and welcomes opportunities to provide informed advice on earth science topics. The present brief comments on several of the specific subjects and issues scheduled for discussion at the Conference.

Mining and the Environment. Balanced and effective policy on land use requires consideration of alternative uses and of coordinated multiple uses for specific areas. A fundamental need for such consideration is the ready availability of comprehensive geoscientific mapping of the land surface, of the subsurface, and of the groundwater regime at scales appropriate for the specific areas. Such information is vital to assessment of the potential mineral wealth and also to the engineering requirements and the needs for construction materials for other land uses. Assessments of the patterns of movement of groundwater are of particular importance for all aspects of waste disposal, including planning for disposal of tailings and effluents from possible mining developments. Provision of such geoscientific maps is a responsibility of provincial, territorial and federal governments with schedules developed for long term programs. For considerations of land use for specific areas, appropriate advance notice is important to allow for appraisal and upgrading of existing geoscientific maps and data and for the commissioning of additional geoscientific mapping that may be required.

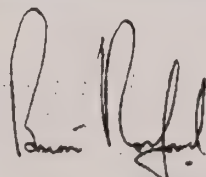
Human Resources and the Mineral Industry. Mining geologists, exploration geochemists and geophysicists, hydrologists and other specializations within the earth sciences all contribute to the effective performance of the mineral industry and to its creation of wealth that helps to provide for the varied needs of society. The technical societies in the earth sciences play important roles in the continuing education of geoscientists in the mining industries by the provision of technical lectures, intense short-courses, specially focused symposia and on-site field excursions. All of these maintain and increase the expertise vital to successful exploration and production.

Employment of professionals within the mineral industry and as related consultants has strong cyclical patterns. These patterns feed similar cyclical patterns of university enrolment in relevant areas of geoscience. Enrolments have fallen dramatically in recent years and the Canadian Geoscience Council has concerns for the future supply of geoscientists, including

those with skills related to the needs of the mineral industry. A parallel and international concern is the reticence of students to enter engineering and scientific fields of study. Global shortfalls in supply can be expected so that a country cannot plan to solve its supply problems by selective immigration of people with the required skills. To help to counter some of these problems, the Canadian Geoscience Council is participating in programs of public awareness of science, in programs to enhance the quality of the teaching of earth science concepts in Canadian schools, and recently has issued a completely new edition of its career guide with the title "Explore Careers in Geoscience".

Challenges in Mineral Exploration. Sustainable development of Canada's mineral resources and the global competitiveness of Canada's mineral industry require continuing exploration for new deposits and the development of new mines as reserves are being depleted. Exploration is becoming more and more sophisticated, as are the necessary levels of geoscientific expertise. Scientific modelling of the processes leading to concentrations of minerals requires detailed knowledge of the geological framework and of the physical and chemical conditions at the times of emplacement. Multidisciplinary geoscientific projects provide such knowledge and aid the effectiveness of mineral exploration. A current example is LITHOPROBE, providing new seismic information and interpretations for lines totalling 1000km annually along selected corridors in Canada, many of which traverse areas with mineral deposit potential. Another is the Ocean-Drilling Program which has just drilled an exploratory hole in deep water in the black-smoker region west of Vancouver Island to gain information concerning the mode of formation of sulphide deposits that are being generated today.

Public Perception of the Mineral Industry. The present widespread ignorance and misconceptions concerning the mineral industry reflect the general public's alienation from science. Earth science phenomena too often are publicised as disasters: earthquakes, volcanic eruptions, landslides, floods, tidal waves and the like. Mineral deposits are beneficial products of earth science processes and provide wealth to society, increasing the standards and pleasures of living. The Canadian Geoscience Council joins with other bodies of responsible scientists to encourage and improve public awareness of science. The general objectives are to encourage the public to have some understanding of the processes of science and to value the immense contributions that science makes to society.



Brian Norford, President

48E CONFÉRENCE ANNUELLE DES MINISTRES DES MINES

Condensé soumis pour la
48^e Conférence des ministres des Mines

Conseil géoscientifique canadien

HALIFAX (Nouvelle-Écosse)
Du 22 au 24 septembre 1991

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48e CONFÉRENCE DES MINISTRES DES MINES

Halifax, Nouvelle Écosse, 22-25 septembre 1991

Condensé soumis par le Conseil Géoscientifique Canadien

Le Conseil Géoscientifique Canadien représente les associations scientifiques et techniques dans le domaine des sciences de la Terre et est un point central pour la coordination et les communications des géosciences au Canada. Au travers de ses sociétaires, le Conseil représente environ 16 000 scientifiques de diverses disciplines fournissant ainsi une expertise abondante. Le Conseil Géoscientifique Canadien attache beaucoup d'importance à ses relations traditionnelles de coopération avec les différents Ministères des mines, de l'énergie et des ressources à travers le Canada et est ainsi heureux de profiter de toutes les occasions possibles pour fournir des conseils avertis sur des sujets touchant les sciences de la Terre. Le présent communiqué présente brièvement plusieurs des sujets qui seront discutés lors de la Conférence.

Les mines et l'environnement Une politique efficace et équilibrée de l'utilisation des terrains d'un secteur précis requiert que l'on prenne en considération ses vocations possibles qu'elles soient opposées ou multiples. De telles considérations exigent la disponibilité d'une cartographie géoscientifique adéquate de la surface, du sous-sol ainsi que de l'écoulement de l'eau souterraine et cela à des échelles appropriées. Ces documents sont essentiels pour évaluer le potentiel d'un terrain minier, la planification des travaux d'ingénierie ainsi que la prévision des besoins en matériaux de construction pour d'autres usages. La connaissance des réseaux d'écoulement de l'eau souterraine est particulièrement cruciale pour tous les aspects liés à la gestion environnementale des déchets miniers ou des effluents d'une exploitation minière éventuelle. L'approvisionnement en cartes géoscientifiques, produites suivant une planification à long terme, est de la responsabilité des gouvernements provinciaux, fédéraux et territoriaux. Pour une région spécifique, il est important d'allouer des délais suffisants pour permettre la mise à jour des données et cartes existantes et pour faire exécuter de nouveaux travaux s'il y a lieu.

Les ressources humaines et l'industrie minérale. Géologues miniers, géochimistes et géophysiciens d'exploration, hydrogéologues et autres spécialistes dans le domaine des sciences de la Terre ; tous contribuent à la performance de l'industrie minérale et à sa prospérité qui aide à subvenir aux différents besoins de la société. Les sociétés et institutions techniques dans le domaine des sciences de la Terre jouent un rôle important dans la formation continue des géoscientifiques de l'industrie minérale en présentant des conférences techniques, des cours intensifs, des colloques sur des sujets spécifiques ainsi que l'expertise essentielle au succès des programmes d'exploration et d'exploitation.

Le taux d'engagement des professionnels à l'intérieur de l'industrie minérale et parmi les consultants est sujet à des cycles importants. Ces changements cycliques se répercutent sur le nombre d'inscriptions universitaires dans les disciplines géoscientifiques. Pour la plupart des universités, le nombre des inscriptions a diminué dramatiquement au cours des dernières années et le Conseil considère la situation de la relève géoscientifique

comme inquiétante, incluant les spécialistes dans les domaines reliés à l'industrie minérale. Parallèlement, et à un niveau international, la réticence des étudiants à choisir les domaines du génie et des sciences se fait sentir. Il est prévisible que la pénurie en personnel qualifié sera généralisée; les pays ne pourront donc pas recourir à l'immigration sélective pour combler de tels besoins. Pour tenter de résoudre certains de ces problèmes, le Conseil Géoscientifique Canadien participe à des programmes de sensibilisation du public à la science, à des programmes pour rehausser la qualité de l'enseignement des sciences de la Terre dans les écoles canadiennes et a récemment fait paraître une nouvelle édition de son guide des carrières avec le titre "Une carrière en sciences de la Terre".

Les défis de l'exploration minière. Le développement soutenu des ressources minières du Canada et le caractère compétitif de l'industrie minérale du Canada exigent de continuer des programmes d'exploration pour de nouveaux dépôts et pour le développement de nouvelles mines à mesure que les réserves diminuent. Les techniques d'exploration sont de plus en plus sophistiquées tout comme le sont les diverses facettes des géosciences. La modélisation des processus de concentration de minéraux exige une connaissance détaillée des contextes géologiques et des conditions physiques et chimiques lors de leur formation. Les projets multidisciplinaires géoscientifiques fournissent ces connaissances et aident à l'efficacité des programmes d'exploration. LITHOPROBE est un exemple d'actualité. Il fournit de nouvelles informations et interprétations sismiques le long de traverses totalisant 1000 km par année et cela dans des corridors choisis au Canada et dont plusieurs traversent des zones potentielles de dépôts minéraux. Un autre exemple est le Programme de Forages Océaniques qui a récemment réalisé un forage d'exploration en eau profonde dans la région de "black-smoker" à l'ouest de l'île de Vancouver pour obtenir des données uniques sur la genèse des dépôts de sulfures actuellement en formation.

La perception de l'industrie minérale par le public. L'ignorance généralisée et les fausses idées concernant l'industrie minérale reflètent l'éloignement général du public face aux sciences. On parle beaucoup des phénomènes naturels associés aux sciences de la Terre lors des désastres : tremblements de Terre, éruptions volcaniques, glissements de terrain, inondations, raz-de-marée, etc. À l'opposé, les dépôts de minéraux, eux aussi résultats bénéfiques de divers processus géologiques, fournissent une bonne part des richesses de notre société tout en augmentant le niveau et la qualité de la vie. Le Conseil Géoscientifique Canadien s'est joint aux autres sociétés et associations scientifiques pour encourager et améliorer la conscience du public face aux sciences. Les objectifs généraux sont d'encourager le public à avoir une compréhension suffisante des processus scientifiques majeurs et à apprécier l'immense contribution des sciences à la société.

Brian Norford, Président

Suit l'énoncé de la mission du CGC

48TH ANNUAL MINES MINISTERS' CONFERENCE

Annual Report
1990

Association of Chief Inspectors of Mines

HALIFAX, Nova Scotia
September 22-24, 1991

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INTRODUCTION

MEMBERSHIP

Membership in the Association of Chief Inspectors of Mines consists of the senior regulators of mining health and safety from every province, territory, Labour Canada, Atomic Energy Control Board, the Federal Explosives Branch and representatives of Energy, Mines and Resources Canada (EMR) and CANMET.

MISSION STATEMENT

The Association of Chief Inspectors of Mines has undertaken to:

- a) foster uniformity in legislation
- b) develop uniform codes of practice and standards
- c) exchange information on technology and experience in health and safety in mines
- d) facilitate cooperation between mining jurisdictions across Canada in emergency preparedness, response and training
- e) to identify and address health and safety problems of mutual concern.

STRATEGIC ACTIVITIES - 1990

Chief Inspectors of Mines met on two occasions during 1990 to exchange information and collaborate on issues of common interest. These issues included the effect of extended workdays at mines on worker health and safety, regional and national strategies for mine rescue and emergency preparedness, mining fatalities, accident and injury statistics, development of C.S.A. standards for mining equipment, processes and procedures.

EXTENDED WORKDAYS AT MINES

Chief Inspectors of Mines, in conjunction with Energy Mines and Resources Canada and with the assistance of the United States Bureau of Mines and Occupational Health specialists from Simon Fraser University, have completed two studies of the fatigue, health effects from exposure to diesel engine contaminants and stress effects. The mines, both underground operations, were the Holt McDermot Mine in Ontario and the Westmin H.W. Mine on Vancouver Island, B.C. These studies are the first of their type to be conducted in any industrial operations in the world and because of their comprehensive nature, are breaking new ground in understanding the stress, fatigue and the health effects of underground mine contaminants for workers on regular 8 hour shifts of varying schedules and when working 10 hour and 12 hour shifts on shorter schedules.

Chief Inspectors hope to continue fostering new research in this area in order to ensure the protection of worker health, safety and quality of working life and at the same time, facilitate industry competitiveness through productivity gains.

NATIONAL MINE RESCUE AND EMERGENCY PREPAREDNESS

Chief Inspectors, through the organization of a committee of Mine Rescue Coordinators, continue to strive for greater standardization of rescue training and procedures. A national database inventory of available equipment and trained personnel has been developed. Each jurisdiction has identified key contact persons who would facilitate the provision of mine rescue assistance in the event of an emergency.

MINING FATALITIES, ACCIDENTS AND INJURY STATISTICS

Energy Mines and Resources Canada (EMR) and Chief Inspectors have continued to build up the number of participating jurisdictions and the National Accident Database. A common and detailed electronic recording system prototyped by British Columbia and refined by system representatives from each province is now operational and will facilitate input to the National Database developed and maintained by EMR. As more years of data and a broader base is developing, Chief Inspectors are confident they will be able to conduct more sophisticated trend analysis to identify prevention targets.

C.S.A. STANDARDS

Chief Inspectors continued a high level of participation in the tripartite mining sector steering committee and subcommittees development of new standards for mining equipment, processes and procedures. Particular areas of concern are Hoisting Rope Testing, Standards and Removal Criteria and Off-Highway Haulage Equipment.

HEALTH AND SAFETY REGULATION

Chief Inspectors examined trends in health and safety regulations, codes of practice and inspection. A representative of Chief Inspectors participated in two International Labour Organization meetings during 1990. Canada sponsored the delegate to a March 1990 meeting of 56 countries to the 5th Tripartite meeting to examine working conditions in mines other than coal mines. The I.L.O. sponsored the delegate to a September 1990 meeting of 21 world experts to critique a Code of Practice for Open Cast Mines. The Canadian delegate chaired the meeting.

Also worthy of mention is the report that the Russian Inspectorate has chosen to translate and use the British Columbia Mine Health, Safety and Reclamation Code as a standard for their mine regulation.

ASSOCIATION OF CHIEF INSPECTORS OF MINES

ANNUAL REPORT

PROVINCIAL SUMMARIES

PAGE 6 OF 52

ALBERTA

Chief Inspector - Anant Prasad, P.Eng.

MISSION STATEMENT

The mission of Alberta Occupational Health and Safety is "to enhance the health and safety of Alberta's workers. We work with many groups and individuals to accomplish this mission but our client is the worker.

MANDATE

Promote health and safety, provide advice and assistance, monitor worksite health and safety program, enforce applicable acts and regulations, and in doing so reduce accidents and injury frequency and severity at the worksites covered by this program.

SIZE OF ORGANIZATION/STRUCTURE

Alberta has been divided into six regions. The mining program has been assigned to the North Central Region where most of the mines and quarries are located and include underground and surface mines, quarries, oil sands and AOSTRA (underground test facility).

Under the recent reorganization, Anant Prasad has been appointed as Manager, Mining Program, reporting to the Regional Director, North Central Region. He is also appointed Director of Mines under the Quarries Act and Regulation. Two Mining Specialists and one part-time Mechanical Specialist are assigned to the Mining Program. Other Specialists' (Electrical, Mechanical Engineer, Hygienist) help is obtained on an as-required basis, either through internal or external resources.

SIZE AND SCOPE OF INDUSTRY

A total of thirty-eight mines and quarries which include small operations, AOSTRA, and one underground mine operate in Alberta, the main ones being coal and oil sands. Approximately 9,700 people are employed in the mining industry which includes oil sands operations (approximately 6,800) in Fort McMurray.

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SAFETY AWARD

Smoky River Coal Ltd. won Canada Trophies for 1990 in the Coal Mines Category. It also won this award in 1986, 1988 and 1989.

Recipient of the Special Award Certificate for exemplary safety records were:

- Fording Coal Ltd., Genesee Coal Mine for zero frequency since 1988
- Alberta Oil Sands Technology and Research Authority - Underground test facilities for zero frequency
- Syncrude Canada Ltd. for consistently low injury frequency under difficult conditions.

COAL

Alberta's raw coal production increased slightly in 1990 to 35.2 million tonnes from 35 million tonnes in 1989. Deliveries of marketable coal declined from 30.8 million tonnes to 30.4 million tonnes because of reduced volume going to Ontario Hydro as well as Japanese and Korean markets. This weakening Coal demand resulted in workforce reductions at several of Alberta's export-oriented mines.

Alberta's electric utilities consume about 70% of the coal produced in Alberta, with the remainder going to markets in Ontario and offshore.

On the development side, Cardinal River Coal Ltd.'s mine near Hinton and Luscar Ltd.'s Coal Valley mine near Edson applied to the ERCB to extend their existing mine permit boundaries to include three major new areas. These extensions are required to maintain continued coal production at existing rates over the next decade. A similar boundary extension to Smoky River Coal Ltd. for its No. 12 Mine South, near Grande Cache was also granted.

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Currently, an updating of the ultimate gas potential for Alberta is being completed. Included in this review will be some preliminary estimates of the potential for non-conventional gas sources such as coal-bed methane. Extensive coal deposits in the province are both a reservoir for and source of methane gas, the result of millions of years of heating and compaction of vegetation.

In Alberta, coal-bed methane development is still at an early stage of investigation. Nevertheless, environmental concerns have been raised about the closer spacing that may be required for coal-bed methane wells, the water usually produced with the gas and the possibility of such developments occurring in the Foothills and Mountains regions of the province.

OIL SANDS

Two huge oil sands quarries, Syncrude and Suncor, are operational in the Fort McMurray area. Advances in science now hold the promise of more efficient and environmentally sound oil sands developments. Dealing effectively with the enormous scale of oil sands projects is an ongoing challenge for all.

Syncrude Canada Ltd. ended 1990 with a record production of 9 million cubic metres of synthetic crude oil, up nearly half a million cubic metres from 1989. Suncor Inc. recorded its third-best year of production since start-up in 1967, producing about 3 million cubic metres of synthetic crude oil.

More than two-thirds of Alberta's bitumen is refined at two upgrading plants in Fort McMurray. The remainder is used for making asphalt and tar for shingles, roofing, and other water proofing materials, or is exported to refineries in Ontario and the United States.

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MAJOR INITIATIVES

1. The review of the Coal Mine Safety Regulation has taken place. Comments and suggestions resulted from the tripartite meeting are being reviewed internally and will be put into a technical draft. The proposal is to send this completed technical draft to all the participants for final review and comments. The final documents will be submitted to the Legislative Council sometime in the fall for their review.
2. A continuing project during 1990 was the thick-seam mining demonstration at the underground mine of Smoky River Coal at Grande Cache. This project is designed to assess the technical feasibility of an integrated mining system capable of extracting coal seams in excess of 3.66 metres (12 feet) thick in a single pass. As part of this initiative a few members of the project's Technical Advisory Committee toured South Africa, Australia and Austria to view and assess equipment that may be included in this project.
- Throughout 1990, work proceeded on the design of the \$4-billion OSLO (Other Six Lease Operators) commercial oil sands mining project. Addressing the many issues of such a massive project was the responsibility of the ERCB-initiated OSLO Application Review Team (OSLO ART) and its eight sub-committees. These groups include representatives from industry, federal and provincial governments, municipalities, and aboriginal and special interest groups. This preparatory work is essential to resolve technical, environmental, social and aboriginal issues in advance of a public hearing. OSLO ART plans to submit a major report and recommendations to the Board in the spring of 1991.

- In September 1990, OSLO applied to the ERCB to scale up its earlier Dredging and Cold Water Extraction Process from a field test to a full-scale pilot project. Known as the Mildred Lake Pilot Project, this dredging and froth preparation process differs markedly from the hot water extraction method now in use at Suncor and Syncrude.
- OSLO also operated a pilot plant at the Petro-Canada Inc. research facility in northeast Calgary, testing various water-based extraction processes. A Warm Water Extraction Process has now been selected for further testing.
- Also in 1990, Syncrude started the first phase of field trials to evaluate the feasibility of capping mature oil sands tailings sludge with natural water. Sludge capping is one of a number of reclamation strategies for oil sands tailings now being investigated by both Syncrude and Suncor.
- In the Fort McMurray area, the Alberta Oil Sands Technology and Research Authority continued to develop its Underground Test Facility Project with the construction of additional tunnels in preparation for drilling six new horizontal wells.

MAJOR CHANGES IN APPROACH

Alberta Occupational Health and Safety is looking into ways of doing business differently and placing more emphasis on a consultative approach. The approach will be to help employers assess how their places of business are dealing with health and safety and help to improve performance. Emphasis will be placed on small business employers in high hazard industries. Other programs will focus on programs for new workers.

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BRITISH COLUMBIA

Director/Chief Inspector of Mines - Ralph W. McGinn

Ministry of Energy, Mines & Petroleum Resources -
Province of British Columbia
Mineral Resources Division
Resource Management Branch

Operates under the Mines Act (1989) and
Health, Safety & Reclamation Code

MANDATE

To provide for the protection of employees and all other persons from undue risk to their health and safety arising out of or in connection with mining activity.

To provide for the protection and reclamation of the land and watercourses affected by mining and to monitor the extraction of mineral and coal resources to ensure maximum extraction with a minimum of environmental disturbance taking into account sound engineering practices and prevailing economic conditions.

SIZE OF ORGANIZATION/STRUCTURE

In 1990 the Branch had 58 regular full-time employees. Two managers, (Safety & Health Standards and Inspection & Enforcement, Permits & Approvals) report to the Chief Inspector, who in turn reports to an Assistant Deputy Minister. Each manager has a group of specialists reporting to him in Victoria and in the seven Regional Offices. In early 1991 the Branch reorganized into two units and has received authorization to add 12 regular full-time employees.

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SIZE AND SCOPE OF INDUSTRY

	<u>Number</u>	<u>Workforce</u>
Major Open Pit and Underground Mines	25	11,738
Placer Mines	500	1,500
Mines In Exploration Development Phase	1,650	4,800
Sand and Gravel Pits & Quarries	2,000	6,000
Major Projects in Mine Development Review Process	15	

MAJOR INITIATIVES/CHANGES IN APPROACH OR LEGISLATION

Mines Act and Regulations - Bill 56, the Mines Act passed 3rd reading of the legislature in 1989. The Act and its attendant Health, Safety and Reclamation Code were proclaimed in the spring of 1990.

Major Change

- * Increased responsibility for joint health and safety committees to self-regulate
- * Decentralized/Regionalized decision making and permitting
- * Increased environmentally responsive mine abandonment by providing clearer guidelines and improved mechanisms for industry-funded reclamation
- * Provides conflict resolution mechanism for cases of hazardous work refusal. Discrimination prohibited and rectified
- * Consistency and parity with other jurisdictions
- * Legislation reorganized for clarity, uncertainties removed and written in concise plain English
- * Strengthens formal involvement of other ministries and government agencies in the approval and permitting process. (One window approach)
- * Previously mandatory medical surveillance programs become voluntary and removal from hazard (dust) exposure no longer mandatory
- * Extensive improvement in Industrial Hygiene regulation

MINE DEVELOPMENT ASSESSMENT ACT

The Mine Development Assessment Act legislating the Mine Development Review Process received third reading in the legislature in 1990. The Act is expected to be proclaimed in 1991. It establishes the Mine Development Assessment Process.

Key Provisions:

- o Subject projects are termed "reviewable mine developments" and are required to obtain "mine development certificates" (in place of the former "approval-in-principle").
- o "Reviewable mine developments" automatically include coal and hardrock mineral mines, and may also include other types of mines, designated on a discretionary basis by the Chief Inspector of Mines, where potential impact warrant thorough review (e.g. placer, sand and gravel or quarrying operations).
- o Both minesite facilities and dedicated off-site infrastructure are subject to impact assessment, with an acceptable environmental management plan required in all cases.
- o The Minister of Energy, Mines and Petroleum Resources and the Minister of Environment share jointly in the key decisions required under the Act, and they may appoint independent assessment panels to conduct inquiries into applications.
- o Provision is made for joint reviews with the federal government and other jurisdictions.
- o Provision is made for public consultation and mediation activities.

MAJOR PROJECTS

- * Sixteen acid mine drainage research projects were conducted during 1990 and a 1.5 million dollar program is proposed for 1991
- * Hours of work study with U.S. Bureau of Mines and Simon Fraser University underway for proposed 12 hour shifts at the Westmin Mine, Vancouver Island
- * Mine Accident Database completed and shared with other Chief Inspectors
- * Ceramic filter evaluation on underground equipment is ongoing and after a thorough sampling project, a T.L.V. for Respirable Combustible Dusts was established at 1.5 parts/million
- * Acid Mine Drainage Technical Guide completed and receiving worldwide recognition
- * Underwater Tailings Disposal Manual completed
- * Open Pit Waste Dumps in B.C. are the largest man-made structures on the face of the earth, some are billion-ton rock drains in excess of 400 m in height. A Tripartite Research Committee was formed and has the following five projects underway:

Interim Design Investigation Manual
Mine Dump Operational Manual
Failure Runout Characteristics
Movement Monitoring Manual
Failure Data Base

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MANITOBA

Director, Mines Inspection Branch - R.H. Glassford, P.Eng.

Department of Labour
Workplace Safety and Support Services Division
Mines Inspection Branch

Mines Inspection staff enforce the Workplace Safety and Health Act and Regulations under this Act, specifically the Manitoba Regulation 62/87, being the Regulation respecting the Operation of Mines.

MANDATE

Mine Inspection staff conduct routine and special inspections on safety and health matters at all mining operations in Manitoba, identify visible, suspected and possible hazards or conditions and provide the highest possible standards of safety and health for workers by ensuring compliance with legislation and with sound engineering practices.

SIZE OF ORGANIZATION/STRUCTURE

One District Mining Engineer; 4 mines inspectors; 1 mines inspector - electrical; 1 mine rescue instructor; environmental engineer; 2 quarry inspectors, 3 support staff.

The Mines Inspection Branch is organized into three regions: Winnipeg, Thompson and Flin Flon, with inspectors residing in Winnipeg, Thompson, Flin Flon and Snow Lake. A District Mining Engineer, resident at Thompson has the responsibility of overseeing the inspectors in all northern mining areas, and evaluating technical data governing the operation of mines at these locations.

In the Winnipeg area, the Director carries out these functions in addition to the overall direction of the branch. The Mines Inspection Branch is organized as a self-contained unit due to specific expertise requirements. It reports directly to the Executive Director of the Division.

SIZE & SCOPE OF INDUSTRY

The mining industry in Manitoba employs about 4,500 workers at producing mines. There are 13 active underground mines, two open pit mines and two integrated smelting and refinery operations. A further 1,500 persons are employed annually by: developing mines and mining contractors; mine construction contractors; contract diamond drilling; quarries, sand and gravel and peat moss operations.

MAJOR INITIATIVES

The Mines Inspection Branch undertakes its mandate and programs in two basic aspects:

1. A proactive function of routine inspections, prioritized inspection, audits, consultation and engineering predevelopment, reviews; and
2. A reactive function which includes complaints, work refusals, unusual occurrences, incident and accident investigation.

MAJOR CHANGES IN APPROACH/LEGISLATION

A tripartite committee has been struck to review and update the Regulation Governing the Operation of Mines. This updating review will be concluded in 1991.

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NEWFOUNDLAND/LABRADOR

Chief Inspector - R.R. March (pro tem)

MANDATE

The Mines Inspection Group administers the Mines (Safety of Workmen) Regulations and the general aspects of the Occupational Health and Safety Regulations under the authority of the Occupational Health and Safety Act by inspecting the mining workplace. The purpose is to protect worker health and safety in mines and mineral related facilities* of the province.

*Mineral related facilities include tunnelling projects, mineral processing plants and sand and gravel pits.

SIZE OF ORGANIZATION AND STRUCTURE

Mines Inspection Engineer	1	
Mines Inspection Technicians	2	
Mine Rescue Training Officer	1	(Education Branch)
Hygiene Technician (Labrador)	2	(Hygiene Section)
Support	2	

SIZE AND SCOPE OF INDUSTRY

Underground Mines	1
Open Pit & Major Quarries	6

There are approximately 3,600 workers employed in the industry.

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SAFETY RECORD

FREQUENCY RATE

1990	5.8 L.T.A. per 200,000 manhours
1989	5.2 L.T.A. per 200,000 manhours
1988	4.6 L.T.A. per 200,000 manhours
1987	4.0 L.T.A. per 200,000 manhours
1986	3.7 L.T.A. per 200,000 manhours

Over the past five years 4.6 L.T.A. per 200,000 manhours

FATALITY RATE

While the rate over the past ten years has been .018 per 200,000 manhours, the rate for 1990 increased to 0.05 per 200,000 manhours when two fatal accidents occurred in the industry.

SPECIAL PROJECTS

There are currently no special projects underway apart from revision of the Mines (Safety of Workmen) Regulations.

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NEW BRUNSWICK

Director, Inspection Services - R.A. Blanchard, P.Eng.
Occupational Health and Safety Commission

MANDATE

The New Brunswick Occupational Health and Safety Commission has jurisdiction over all provincially regulated companies. The mandate of the Commission is to reduce, with the involvement and participation of workers and employers, the incidence of accidents and illnesses to workers in the workplace and to improve health and safety conditions in the workplace environment by means of research, education, promotion and enforcement of legislative authority.

SIZE OF ORGANIZATION & STRUCTURE

The Director of Inspection Services is Raymond Blanchard, P.Eng. The position has a dual function: one as Director of Compliance Officers and Managers for General Safety, Mine Safety and Forest Safety; the other as Chief Inspector of Mine Safety.

The Occupational Health and Safety Commission has 50 employees divided into five units which encompass Policy and Planning, Administration, Education and Communication, Industrial Hygiene and Inspection Services. The Inspection Services unit has 22 employees assigned to it, 5 of which are Mine Safety Officers.

SIZE AND SCOPE OF INDUSTRY

New Brunswick has approximately 300,000 workers, of which approximately 5,000 work directly for mining companies.

MAJOR CHANGES IN LEGISLATION

The New Brunswick Occupational Health and Safety Commission, in consultation with industry and labour, is completing a major revision of the Occupational Health and Safety Regulations including Mine Safety Regulations.

The new Regulations will be more logically laid out, more easily understood and will more clearly define who is responsible for specific obligations. The initial parts came into effect in June 1989. It is anticipated that the other parts of the Regulations will come into effect by the fall of 1991 and beyond.

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NORTHWEST TERRITORIES

Director & Chief Inspector - W.O.J. Skelly
Mine Safety Division
Department of Safety and Public Services
Government of the Northwest Territories

SIZE AND STRUCTURE OF DEPARTMENT

Mine Safety Division is a part of the Department of Safety & Public Services. The Director/Chief Inspector reports to the Deputy Minister.

Mine Safety Division consists of nine people: Director/Chief Inspector, Mine Training Coordinator, Mechanical/Electrical Engineer, Environmental Engineer, Mine Rescue Superintendent, three Inspectors and a Secretary.

Mine Safety Division inspections include all mines, sand and gravel pits and rock quarries.

Mine Safety Division Inspectors are Deputy Explosive Inspectors and enforce the Explosive Act and Explosive Regulations.

SIZE AND SCOPE OF INDUSTRY

The Northwest Territories had seven operating mines in 1990. There are six underground operating mines and one open pit mine.

There was approximately 2,100 people employed directly by the mining industry in 1990.

CHANGES/INITIATIVES - LEGISLATION

The Department of Safety and Public Services, Mine Safety Division undertook a complete revision and rewriting of the Mining Safety Act and the Mining Safety Regulations in 1990. The revised Act and Regulations will be sent to labour and industry for consultation and review. It is hoped that the new Act will be introduced in the Legislature in the 1991 fall sitting.

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NOVA SCOTIA

Director, Mine Safety Section - C.J. White, P.Eng.
Nova Scotia Department of Labour

MANDATE

The Mine Safety Division, Nova Scotia Department of Labour is responsible for monitoring the mining industry for compliance with the Occupational Health and Safety Act and related regulations. The Cape Breton Development Corporation falls under the jurisdiction of Labour Canada. The section also provides training in emergency first aid and mine rescue and on behalf of the Board of Examiners, administers the certification program for coal mines.

SIZE AND SCOPE OF INDUSTRY

The mining industry which includes pits, quarries, underground coal and hardrock mines, falls under the legislative requirements of the Coal Mines Regulation and Metalliferous Mines and Quarries Regulations.

SIZE OF ORGANIZATION AND STRUCTURE

Regional offices are located in Glace Bay, Stellarton and Springhill; head office in Halifax.

The Mine Safety Section has six safety officers, a supervisor, director and two support staff.

The Section maintains a fully equipped mine rescue station in the Stellarton office.

CHANGES/INITIATIVES LEGISLATION

New blasting regulations came into effect March 1, 1991.

Major changes included:

- increased responsibility and authority to the blaster
- a code of practice is now required when drilling closer than six meters to a loaded hole
- a completely revised certification program which affects approximately 500 people qualified in the use of explosives
- a new "restricted use" class of blaster is created for specialists' field
- refresher training required every three years.

The Metalliferous Mines and Quarries Act and the Coal Mines Regulation Act are being revised and will be ready for review by industry and labour in 1991.

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ONTARIO

Director - P.V. Kivisto, P.Eng.
Mining Health and Safety Branch

MANDATE

The objective of the Mining Health and Safety Branch is to have workers and management in the Ontario mining industry achieve a safe and healthful occupational environment. Through active emphasis on the Internal Responsibility System (IRS), the branch encourages workplace parties to identify and control hazards in the workplace in a cooperative manner.

The branch administers the Occupational Health and Safety Act, R.S.O. 1980, C.321, Regulation 694 as amended by O.Reg. 258/87 and the Regulations for Mines and Mining Plants, the designated substances regulations, and Regulation 633/86 for oil, gas and related industries offshore.

The branch's activities apply to 194 underground mines; 60 open pit mines; 6,613 sand and gravel pits; 485 quarries; 49 metallurgical and ore processing plants and laboratories; and 49 clay, shale and peat workings.

In 1990/91 the branch:

Carried out 2,098 inspections, resulting in 2,505 orders, 95 of which were stop work orders.

Investigated all fatalities and published reports of the investigations. During 1990/91, 9 fatalities were investigated, 7 of which were under the jurisdiction of the mining regulations.

Investigated 16 work refusals. Also investigated 229 complaints of unsafe or unhealthful conditions.

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Research, analysed and prepared background information for the Mining Legislative Review Committee, covering the following areas:

- electricity
- mine shaft hoisting and inspections
- loading pockets
- diesel exhaust measurements
- arsenic in underground mines
- radon in non-uranium mines
- misfired explosives
- worker inspectors
- fall-on protective structures
- hours of work
- ground control
- first aid
- lunchrooms and washrooms

Conducted 845 tests of ropes for wire ductility and rope strength at the Wire Rope Testing Laboratory.

Conducted working environment surveys to determine exposure to dust, gases, arsenopyrite, diesel emissions and fumes.

Conducted pre-development review of new mining process technology, the use of new methods of construction and equipment installation, major alterations of mining techniques and technology, and major additions and alterations for compliance with the Act and Regulations.

Provided mine rescue training, with 995 participants involved in the mine rescue training program and 31 teams of seven competing in eight district mine rescue competitions. Mine rescue officers conducted 6843 person-days of training. This total does not include extra district and provincial competition training or emergency assistance. Mine rescue teams responded to 63 emergencies.

Through a joint industry/labour/ministry endeavour, conducted 5 workshops to promote the Internal Responsibility System. The workshops were held in

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locations throughout northern and southern Ontario. One hundred and five management and labour representatives from the mining industry participated in these workshops.

Organized cooperative research programs. The Ministry of Labour, through the Mining Health and Safety Branch, has entered into a number of cooperative research programs with the federal Department of Energy, Mines and Resources (Canada Centre for Mineral and Energy Technology) and the United States Bureau of Mines. These initiatives include programs and studies on wire rope and hoisting technology, the effects of extended hours of work, and rock mechanics and ground control.

Published and widely distributed quarterly reports covering industry performance in such areas as incidents, accidents, fatalities, prosecutions and hazard notices.

Conducted mine audits to evaluate the industry's ground control program and identify needed improvements and audits of the integrity of surface storage vessels.

Maintained a computerized database on unusual occurrences such as falls of ground and rockbursts, in order to identify trends, causes and preventive measures.

Participated in the continued development of a National Mines Accident Database.

Chaired the CSA Steering Committee on Mining Standards and participated in several standards subcommittees.

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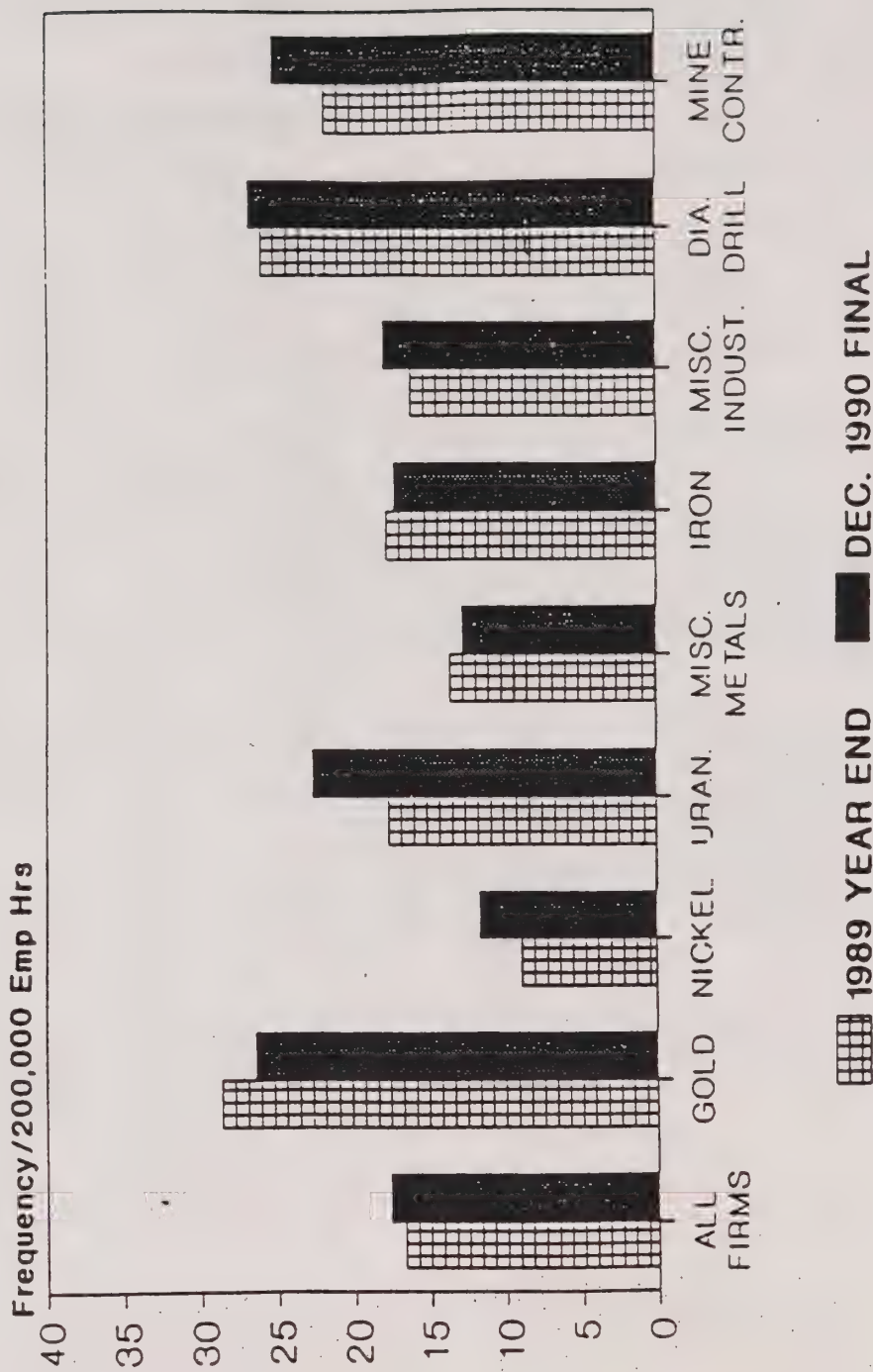
Mining Health and Safety Branch - Inspection and Fatality Data

	<u>1990/91</u>	<u>1989/90</u>
Mine Rescue Stations	8	7
Mine Rescue Substations	45	46
Miners Under Training in Mine Rescue	995	700
Wire Rope Tests	834	942
Revenue from Wire Rope Tests	\$260,934	\$238,874
Fatalities Investigated	9	11
Refusals to Work Investigated	16	20
Unusual Occurrences Reported	262	271
Hours Spent on Complaints Investigations	2406	2062
Pre-development Review	7715	8284
Inspection Reports	3632	2782
Orders Issued	2505	3825
Stop work Orders	95	89
Prosecution Cases	10	14
Convictions	10	11
Fines	\$126,000	\$100,000

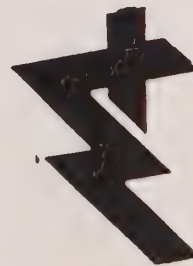
Mines
Accident
Prevention
Association
Ontario

P.O. Box 1468
147 McIntyre St. W.
North Bay, Ontario
P1B 8K6
(705) 472-4140
Fax: (705) 472-5800

TOTAL MEDICAL INJURY FREQUENCY ONTARIO MINING INDUSTRY



SOURCE : MAPAO REPORT MS0101.1



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QUEBEC

C.S.S.T. (Quebec Workers' Compensation Board) has nothing special to report at this time.

Please see Page 45 for a report of the activities of A.P.S.M. (Joint Association for Occupational Health and Safety in the Mining Sector).

SASKATCHEWAN

Mine Safety Unit - B. Allan, P.Eng., Chief Inspector

SIZE OF ORGANIZATION AND STRUCTURE

The Mine Safety Unit consists of four people, including the Chief Inspector. There are two engineers and two tradespeople. The Chief Inspector reports to the Executive Director of the Occupational Health and Safety Branch of the Department of Human Resources, Labour and Employment. The Unit covers 30 mine sites and approximately 10 prospects.

ACTIVITIES

1. Routine work is divided into inspections, monitoring and training. When inspections and accident analysis show that the corporate safety program is productive, then that mine is audited more than inspected. Where improvement is needed, the committee and worker training is initiated by the Unit to encourage an effective safety and training program at the mine site.
2. New mines are given vigorous attention to ensure that each mine starts off with an effective safety program.
3. A Unit Procedure Manual is being developed.
4. The Mines Regulations 1991 are complete and ready for legislative approval.

PROJECTS

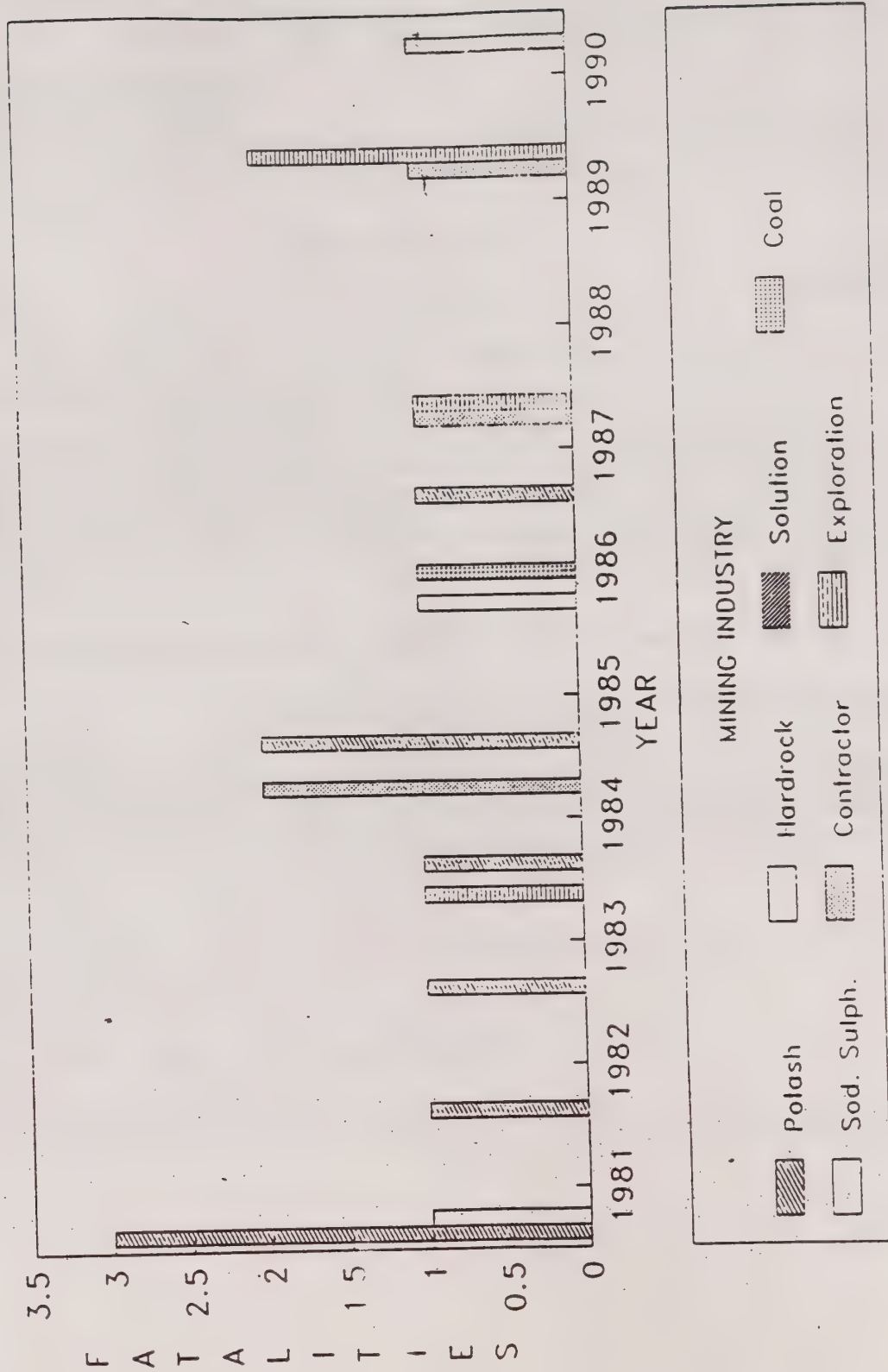
1. The Mines Unit and Radiation Unit are co-operating to develop guidelines for control in high grade uranium mines and also those that have a high inflow potential for radon contained in water. Underground mine layouts are examined to ensure that ventilation, egress and water control are adequately handled in the planning stage. To handle the exploration and development stages, the new Mines Regulations require that exploratory drill holes are adequately grouted to control any future inflow into workings.
2. The development of Codes of Practice will be given attention in 1991/92.

INDUSTRY ACCIDENT FREQUENCY AND SEVERITY

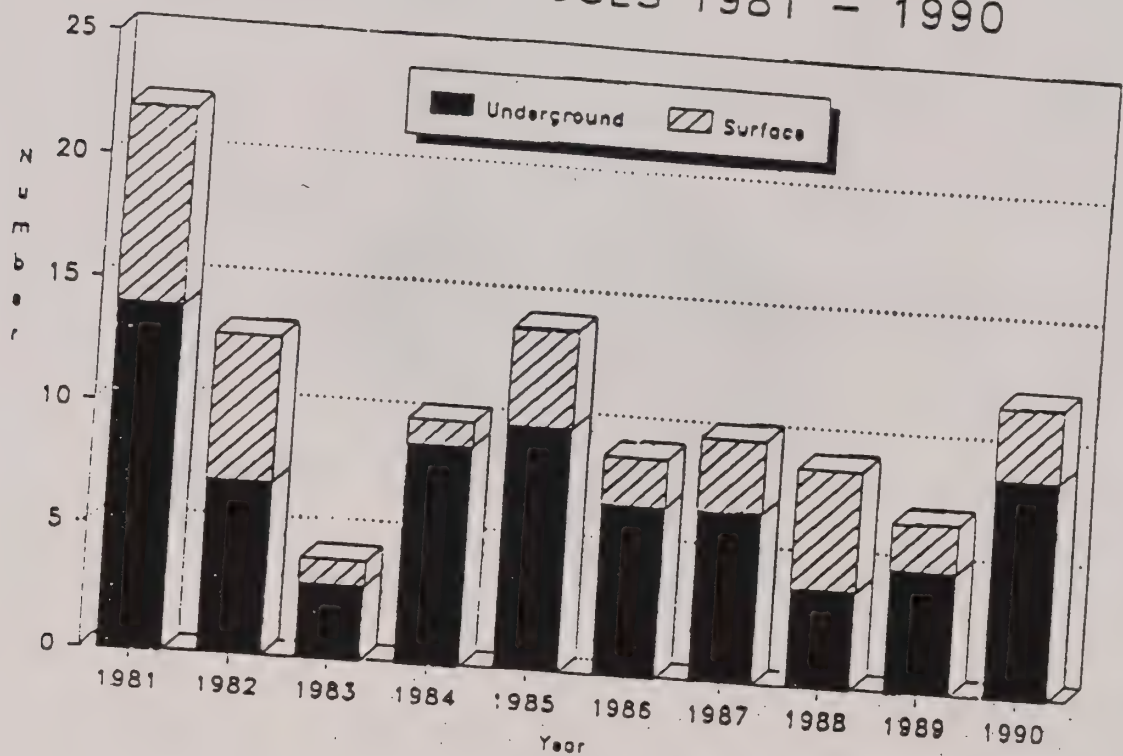
The long term improvement continued in 1990 due to a number of factors. These included a stable work force, improved corporate training and safety programs and regular inspections. There was one fatality.

SASKATCHEWAN MINING FATALITIES

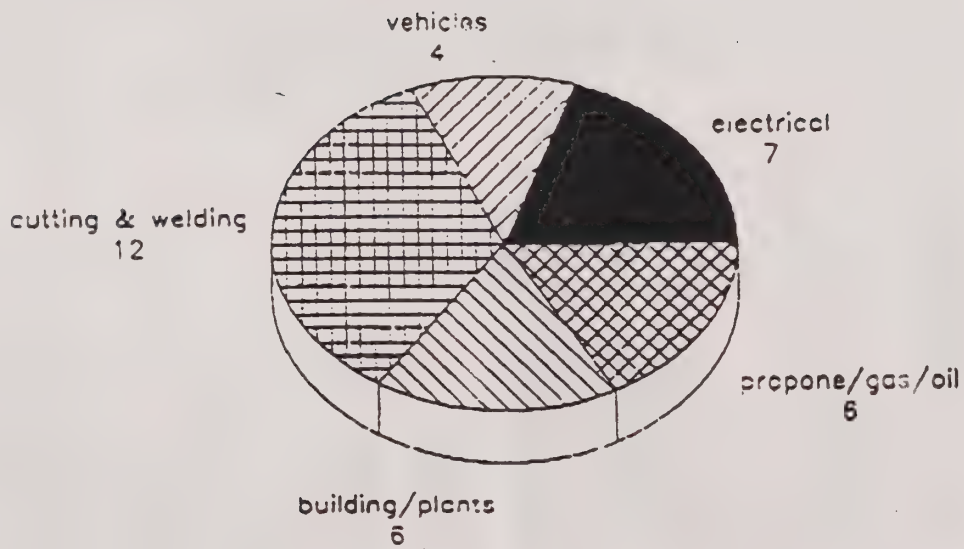
1981 - 1990



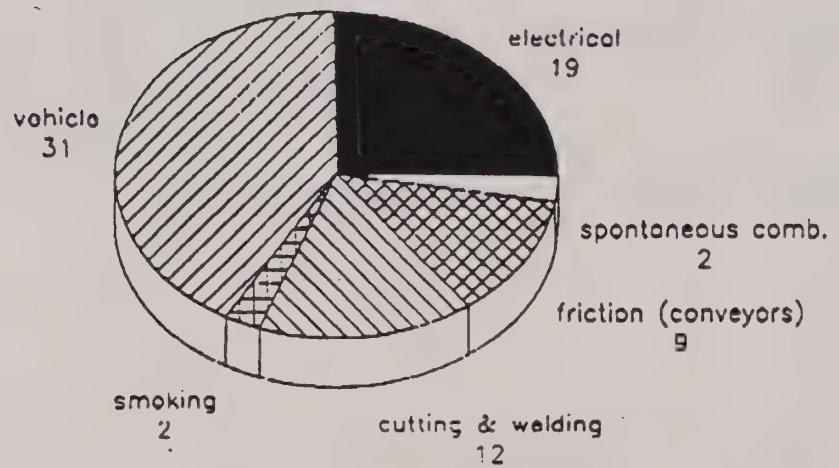
FREQUENCY OF FIRES IN SASKATCHEWAN MINES AND THEIR CAUSES 1981 - 1990



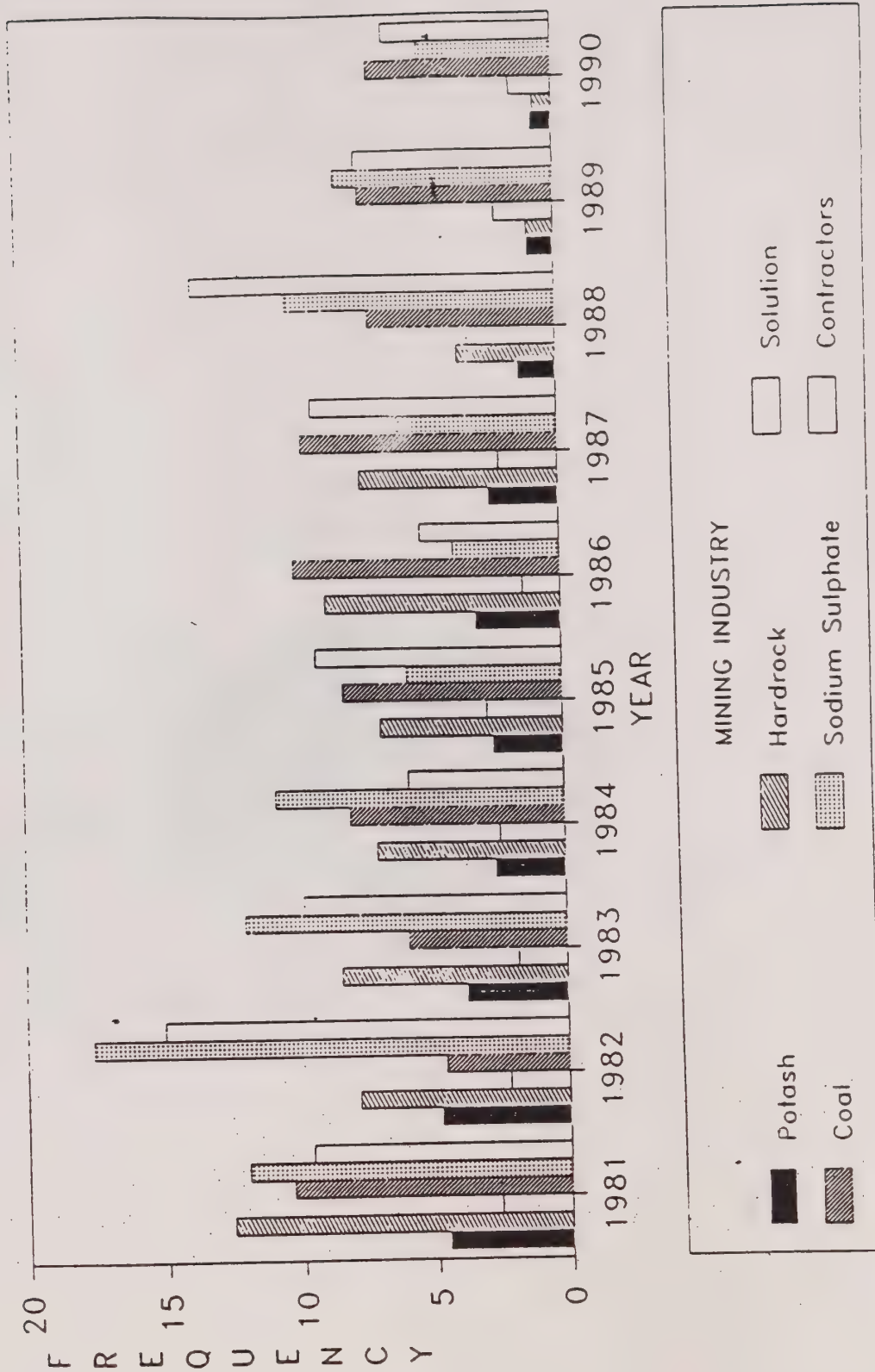
SURFACE



UNDERGROUND



SASKATCHEWAN MINING INDUSTRY LOST TIME ACCIDENT FREQUENCY 1981 - 1990



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YUKON TERRITORY

Chief Inspector of Mines - Naresh Prasad, P.Eng.
Department of Justice
Occupational Health & Safety

SIZE AND STRUCTURE OF ORGANIZATION

The Mine Safety Unit is a part of the Occupational Health & Safety Branch and the Chief Inspector of Mines reports to the Manager, Occupational Health & Safety.

The Mine Safety Unit has been assigned four persons: Chief Inspector of Mines, Mine Safety Inspector, Mine Rescue Superintendent and a Secretary.

Due to the cyclical nature of the mining industry, it is expected that employees of the Mine Safety Unit may conduct safety inspections on other than mining property if time is permitted.

SIZE AND SCOPE OF INDUSTRY

The mining industry is the most important sector in the Yukon's economy. During 1990, it had two producing mines with more than 100 employees. It also had two other underground mines, one of which mined gold bearing frozen gravel. Yukon also has approximately 195 placer gold mines employing approximately 700 on a seasonal basis. The major minerals produced were zinc, lead, gold and silver. The value of mineral production for the year 1990 was 509 million dollars.

The mining industry employs about 1,600 workers at producing and developing mines. During 1990 there was one fatality and the accident frequency was 5.0.

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ENERGY MINES AND RESOURCES

Explosives Division - Chief Inspector of Explosives - R. Shaw

Operates under the Explosives Act and Regulations

MANDATE

To administer the Explosives Act and Regulations in order to achieve public and worker safety in explosives manufacture and storage and to help achieve safety in transport and use.

SIZE OR ORGANIZATION/STRUCTURE

The Explosives Division has 28 full time employees. At Headquarters in Ottawa are the Director - Chief Inspector of Explosives, the Deputy Director, four specialist inspectors an explosives technologist, and 7 support staff. There are five regional offices located in Halifax, Quebec City, Ottawa, Calgary and Vancouver. Each regional office has one or two inspectors and a secretary.

SIZE AND SCOPE OF INDUSTRY

Explosives, propellants, pyrotechnics and explosive or pyrotechnic articles are all controlled.

Factories	about 100
Vendors' Magazine Sites	about 180
Users' Magazine Sites	about 2000
Annual number of Import Permits	about 800
Annual Value of Goods:	about \$350,000,000

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MAJOR INITIATIVES

None to report as recently accomplished.

OBJECTIVE OF THE DIVISION

The Explosives Division has as its main objective the control of explosives manufacture, storage and transportation in the interest of public safety and within the framework of the Explosives Act and Regulations. Responsibility for transport is passed to Transport Canada under the Transportation of Dangerous Goods Act, with the Explosives Division retaining an advisory role.

Exempt from Division control are:

- a) Use of explosives, which is provincially controlled,
- b) Explosives under the control of the Department of National Defence.

Means of Control

Control of explosives manufacture and storage is achieved by a system of licensing and inspections.

A licence issued by the Division is required by each explosives factory and each operating or storage building within the factory. This applies to industrial explosives, fireworks, ammunition, military or industrial pyrotechnics and any explosive devices. Similarly, no explosives can be imported into Canada without a permit. Further, the particular explosives to be made or imported must first be authorized individually, even though, in the case of domestic manufacture, the factory where they are to be made already has a licence. Authorization is commonly given by the Chief Inspector of Explosives only after samples have been examined by the Canadian Explosives Research Laboratory, which is itself part of EMR.

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Licences are also required for magazines, whether or not at a factory location and permits are required for trucks carrying explosives in excess of certain quantities. The issuing of truck permits will soon be taken over by the Transportation of Dangerous Goods Directorate.

Licences are granted after applications are received indicating that the proposed buildings, trucks or operations meet the requirements of safety. Inspections ensure the maintenance of those standards.

All members of the R.C.M. Police force are deputy inspectors of explosives. The R.C.M.P. have helped draw up magazine standards and they inspect user magazines once a year to ensure compliance with standards and retain familiarity with the locations of explosives stores.

Beyond licensing and inspection, which are the formal and most important parts of control, the Division carries out an extensive educational program, both informally through discussions with industry and more formally through:

- a) Publications about standards, safety and accidents
- b) Participation in seminars and training programs of which the Division conducts about 70 a year
- c) Fireworks Supervisors' Course
- d) Films and slide presentations on safety with explosives
- e) Committee activities directed to the betterment of national and international regulations

With so much said about licensing, authorization and inspection, it is worth noting that education and discussion and persuasion are usually effective in correcting any deficiencies which are found and that prosecution under the Act is rarely necessary.

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Liaison

The Division, in order to function effectively, recruits persons knowledgeable about explosives and therefore is in a position to advise other government agencies about problems related to explosives. The Division is recognized as the authority on explosives and pyrotechnics by the Departments of Transport, Labour, Consumer and Corporate Affairs, Post Office, Justice, R.C.M. Police and the Canadian Transport Commission. In turn, the Division maintains contact with industry and the military in Canada and other countries so as to be able to draw on the expertise of others as required.

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LABOUR CANADA

Senior Mine Safety Engineer - T.E. Smales

Office located in Sydney, Nova Scotia

MANDATE

The Sydney Office of Labour Canada continues to be the regulatory body for safety and health in the coal mines of the Cape Breton Development Corporation.

INTRODUCTION

There are three working underground coal mines which employ about 3,000 persons and one non-working mine in which two tunnels have been driven 3 km out for initial development.

The Corporation has a coal preparation plant located on the outskirts of Sydney, a ship loading pier in the harbour of the city and a railway system.

There are severe economic pressures on the coal mining industry which require coal production at very low cost. Both Prince and Phalen Mines are working longwall retreat mining and Lingan Mine is now developing its first retreat face with a view to going all retreat in the future.

All of the mines are accessed by in seam drifts and are under the ocean. These two factors produce problems peculiar to this type of mining even though geological conditions are good.

ACCIDENT RATES

The frequency and severity of accidents continued to reduce during the year 1990 and this is a pleasing feature as the trend has continued for the past eight years. Many of the accidents are investigated and reviewed by the Safety and Health Committees. Recommendations are made and persons who will take necessary action are identified.

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COAL MINING SAFETY COMMISSION

Current legislation did not allow for approval or exemption under the act by the Chief Inspector. The Canada Labour Code established a Commission with powers of approval and exemption. In addition, the Commission have the legislative authority to "Designate" a person to give approvals on its behalf.

The Commission meets at irregular intervals, considers exemptions and reviews approvals issued by the Designated Person.

The system works well but does limit the ability to issue exemptions quickly.

The Designated Person is currently the Senior Mine Safety Engineer.

HAZARDOUS OCCURRENCES

The major hazardous occurrences reported during the year were:

"Heat or smouldering due to conveyor idlers and

Electrical flashes".

A Task Force comprising union, management and Labour Canada representatives meets on a quarterly basis to review occurrences which involve heat, potential fires or explosions. the Task Force is suitably supported by actions of the unions and CBDC.

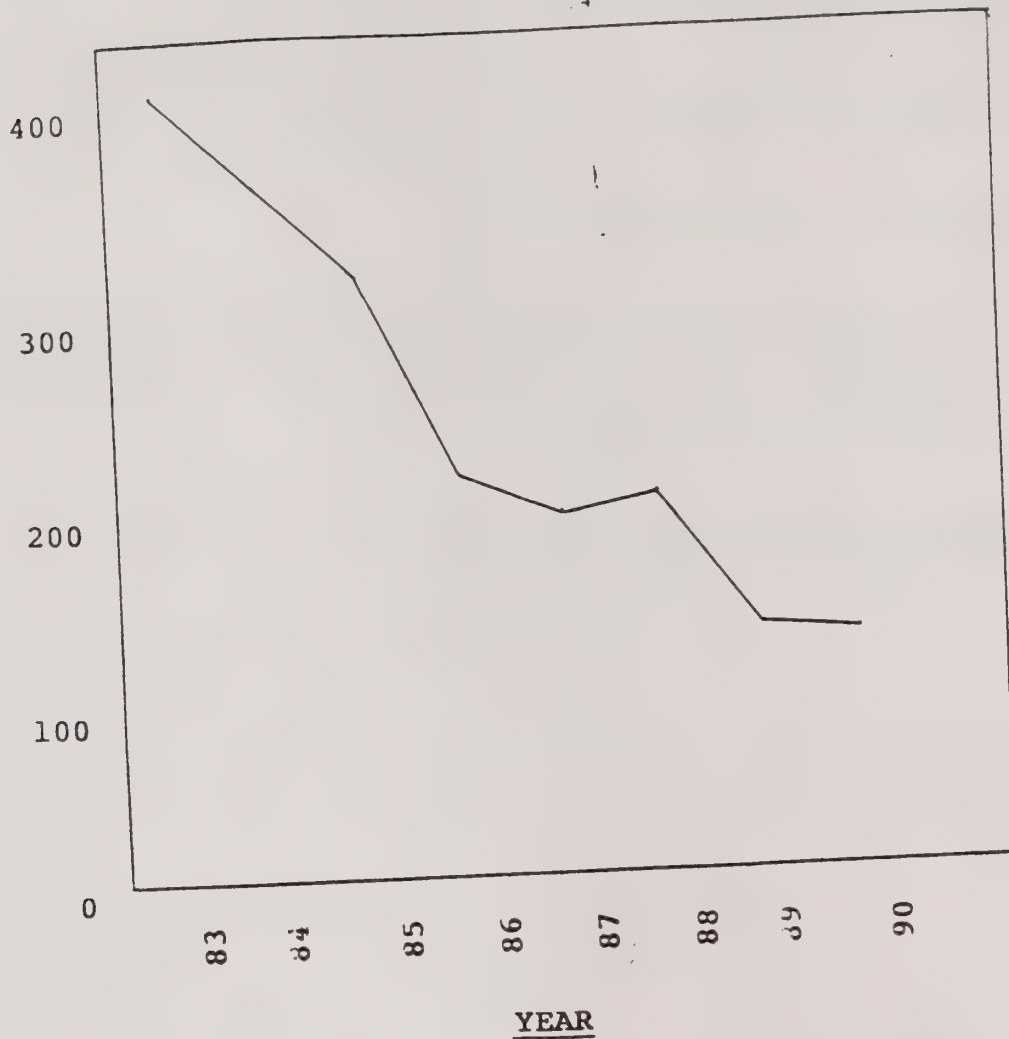
There was one incident of frictional ignition when methane was ignited by the picks on a roadheading machine striking strata containing a high percentage of silica. All development personnel have been informed of the necessary care that should be taken under those conditions.

STAFFING

The office is staffed by one mining engineer, one electrical engineer, an environmental engineer and two safety officers.

ACCIDENT FREQUENCY - CBDC

FIG. 1



$$\text{FREQUENCY} = \frac{\text{No. of Lost Time Accidents}}{\text{Total No. of Hours Worked}} \times 10^6$$

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A.P.S.M. SUMMARY OF ACTIVITIES

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Director General - A.P.S.M. - Pierre Lapointe, P.Eng.

The Association paritaire pour la sante et securite du travail du secteur minier (joint association for occupational health and safety in the mining sector) - (APSM) is a sector-based association whose members include representatives of employer and union groups in the Quebec mining sector. The sector covered includes metal, asbestos, iron-ore and industrial mineral mines, mining entrepreneurs, diamond drillers and prospectors. Approximately 15,000 men and women work in this sector.

The APSM is responsible for providing employers and workers in the mining sector with training, information, research and consulting services in the area of occupational health and safety. Its prime objective is to involve all of these individuals by encouraging the cooperation of labour and management in accident prevention.

This summary provides an overview of the activities carried out in 1990 which enabled our association to strengthen its role with respect to its terms of reference. Our training, information and consulting services have expanded and the demand for these services is ongoing.

In 1990, the area of joint training was dominated by the joint inspection course which was conducted 12 times. This course is a real success and in great demand; it is scheduled to be conducted every week for the next three months. The basic health and safety and the accident investigation courses were requested and conducted six times. The latter is currently being revised because, according to users, the method proposed must be made simpler and should be easy to adapt to the particular requirements of each establishment.

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With respect to information activities, the APSM worked closely with the mining accident investigation committee. It also had to resume the review of the proposed regulation on health and safety in mines. The APSM, which had obtained labour-management consensus on all of the provisions of this proposal, expressed its frustration with the administrative delays affecting this regulation. It is even unlikely that this regulation will take effect in 1991. In the area of information, the APSM also continued its efforts to collect and process statistics on accidents. The accident statistics for 1990 were the best since 1987. There has been a regular decrease in the frequency of accidents and their severity seems to have levelled off. According to reports, 18.7% of 12,950 workers received compensation from the CSST (9.7%), or were temporarily assigned to other duties (9%). It is estimated that accidents for which compensation was paid in 1990 will result in an average of 41.2 days away from work. Unfortunately seven workers were victims of fatal accidents.

Two advisers were hired during the year. Antoine Chevarie and Francois Gay have the difficult task of encouraging joint labour-management activities in the workplace. Their valuable experience has already improved APSM's training and consulting services. Encouraging results were achieved in 1990 because of the perseverance of APSM's other permanent employees, administrators and clientele.

**THE NATIONAL MINE ACCIDENT
DATA BASE (NMADB)**

STATUS REPORT

APRIL 1991

BACKGROUND

As indicated in the last status report presented at the May 1990 meeting of the Association of Chief Inspectors of Mines, a prototype National Mine Accident Data Base (NMADB) is in place. Four jurisdictions are now participating in the national data base since N.W.T. has officially joined the program in late fall of 1990. The data base is representative of accidents which affected workers within approximately two thirds of the mining workforce of Canada over the last four years.

The NMADB now contains more than 23,000 records descriptive of mining accidents which occurred over the five-year period from 1986 to 1990. This data allows production of statistical analysis of accidents from a general to a more specific level of detail.

The creation of the NMADB resulted from a task force set up by the Association of Chief Inspectors of Mines in the early 1980s. This project was born from the desire of this Association to see descriptive accident data captured at the national level. Energy, Mines and Resources Canada has agreed to act as the project coordinator with the cooperation of Canadian mining jurisdictions.

RECENT DEVELOPMENTS

1. Data for 1990 from Northwest Territories, British Columbia, Ontario and Quebec were received and converted to the NMADB. In the case of Ontario, previous year's data have also been updated.

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2. A conversion module has been developed to convert data captured with MINACC to the NMADB. This was required in order to incorporate N.W.T. 1990 data. Also, other changes to NMADB applications were made to reflect the addition of a new participating jurisdiction.
3. The newly converted data is in the process of being verified and corrections of coding as well as other record adjustments will have to be made shortly, in cooperation with the jurisdictional authority concerned and other members of the NMADB Working Group.
4. NMADB system documentation (conversion and programming) was updated and completed. Also, the preparation of a user's guide was initiated earlier this year and is now nearing completion.
5. In terms of bilingualization of the NMADB, the menu system was translated and French expressions are in the process of being inserted into the system.
6. The new MAPAO coding structure was examined and its impact on the NMADB as a Canadian common denominator was assessed in a preliminary manner. There remain a number of technical questions which will have to be addressed by the NMADB Working Group.
7. The NMADB Working Group held its second meeting in Victoria, B.C. in October 1990. The meeting was attended by representatives from the Chief Inspectors of Mines of N.W.T. and B.C. and the Mines Accident Prevention Association of Ontario. The minutes of the working group meeting as well as the action plan agreed upon at the meeting were sent to Chief Inspectors.

The first meeting of the Working Group had taken place at EMR in Ottawa on December 12, 1989. The idea of creating a working group on the NMADB was discussed and agreed upon at the August 1989 meeting of the Association of Chief Inspectors. The purpose of the NMADB Working Group is to bring cooperative solutions to a number of technical issues (i.e. database structure and fields coding) regarding the development of the NMADB as a pan-Canadian mine accident data base.

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8. A number of analyses were prepared for presentation to Chief Inspectors at their meeting of April 27 and 28, 1991, and their subsequent publication in the Association's 1990 Annual Report. Analyses were prepared for a small number of private requests for information.

CURRENT STATUS

A - STATISTICAL CONTENT

The NMADB now contains 23,631 records of occurrences which took place in the four participating jurisdictions: over the 1986-1990 period in British Columbia and Ontario, over the 1987-1990 period in Quebec and in 1990 in Northwest Territories.

Of the 23,631 NMADB records, 101 (0.4 percent) are fatalities, 8,339 (35 per cent) are lost time injuries, 14,853 (63 per cent) are medical aid injuries and 338 (1 per cent) are dangerous occurrence incidents.

When considering the 19,465 NMADB records reported by B.C., Ontario and Quebec over a common four-year period starting 1987, one finds that:

- (a) of the 90 records of fatalities coded in the NMADB for that period, Quebec, Ontario and British Columbia account respectively for 26 per cent, 51 per cent and 23 per cent of these reported fatalities. This shows that fatality records of the NMADB are distributed among these three mining jurisdictions in proportions close to their relative share in terms of hours worked in mining. Based on 1988 Census of Mines statistics for person-hours paid in metal and non-metal mines, and sand pits and quarries (the latter excluded for Quebec) the relative shares were 28 per cent for Quebec, 56 per cent for Ontario and 16 per cent for British Columbia;

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- (b) in terms of the 7,500 NMADB records of time-loss injuries for the four-year period, they distribute as follows: 70 per cent are from Quebec, 26 per cent from Ontario and 4 per cent from B.C. This uneven distribution is due, in most part, to differences in sampling coverage among the three jurisdictions. In British Columbia, lost time injuries are reported for only four mines at the present time while coverage is in the order of 70 per cent in Ontario and close to 100 per cent in Quebec (excluding sand and gravel quarries);
- (c) regarding medical aid injuries, 99 per cent of these NMADB records are reported by Ontario since only B.C. is also reporting these injuries and for four mines only;
- (d) finally, 100 per cent of NMADB dangerous occurrence records are coded by B.C. since only this jurisdiction reports incidents in this category.

Looking specifically at 1990 data, and taking into account injuries reported by the Northwest Territories, the distribution per jurisdiction of fatal injuries coded in the NMADB is as follows: 31 per cent for Quebec, 42 per cent for Ontario, 21 per cent for British Columbia and 5 per cent for the Northwest Territories. The distribution of hours worked among the four jurisdictions differs slightly, Quebec accounting for 27 per cent, Ontario for 54 per cent, B.C. for 15 per cent and N.W.T. for 4 per cent. Records of time-loss injuries remains unevenly distributed where Quebec and N.W.T. are overrepresented with respectively 67 per cent and 10 per cent of these records, and Ontario and B.C. accounting for only 19 per cent and 4 per cent respectively.

These factors are to be taken into consideration in the interpretation of analyses produced from the database.

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B - WORK IN PROGRESS

1. Standard reports: A number of members of the Working Group have expressed their views on a proposed list of standard reports for the Chief Inspectors. However, further discussion is required in order to achieve a consensus and recommend a documented proposal.
2. New MAPAO coding structure: As mentioned above, a preliminary assessment was made of the impact of MAPAO new coding structure on the NMADB. Among the technical questions which will have to be addressed by the NMADB Working Group, there are (a) the identification of MAPAO minor structural changes (coding) from the major ones (fields), (b) the analysis of the comparability of the data among jurisdictions. This is in order to decide on the best way of converting MAPAO's 1991 data in the NMADB while maintaining the NMADB role as a common denominator for consistent national analyses.
3. Contact with jurisdictions: Maintain close contact with jurisdictions interested in participating in the project (e.g. adopting MINACC).

FUTURE DEVELOPMENTS

Looking ahead, other upcoming developments which are of importance to the successful implementation of the NMADB are:

- (a) to pursue the activities of the working group through formal and informal communications (including meetings);

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- (b) to jointly establish a working group plan for future activity, with a view to address a number of issues, among others:
- (i) look forward to standardize definitions;
 - (ii) look at scenarios for the NMADB to accommodate MAPAO's structural change with a view to maintain maximum national consistency in the coding of mine injuries (i.e. two basic scenarios but each one will have an impact on the NMADB comparability with APSM and MINACC data);
 - (iii) discuss the conversion to the NMADB of MINACC expanded coding under ACTIVITY and TASK fields coding;
 - (iv) communicate up-to-date information on the status of MINACC, and its operationalization in B.C., to members of the working group;
 - (v) initiate analytical work on the statistical and methodological issues related to the incorporation of "population at risk" data into the NMADB;
 - (vi) look at the possibilities of coding a field on the number of days lost.

APPENDIX 1

LOST TIME ACCIDENT

FREQUENCIES

1990

(based on 200,000 hours)

CANADA

LOST TIME ACCIDENT FREQUENCIES - UNDERGROUND

COMPANY NAME	HOURS WORKED	FREQUENCY
Minerals Lac* - Bousquet #1	329,387	35.8
#2	192,743	24.9
Giant (NWT)	689,109	18.0
Dickenson	770,314	4.7
Westrock Ind. Ltd.	50,489	4.0
Hudson Bay - Trout Lake	221,311	12.85
Hudson Bay - Ruttan Mine	847,889	12.97
Blackdome ¹	143,555	26.47
Nerco	722,054	21.8
Teck ¹	62,206	25.72
Minerais Lac*	120,747	8.3
Q.I.T.-Fer & Titane Inc.*	687,172	14.6
Mines Aaurizon - Geant Dormant*	244,365	29.5
Ressources Audrey*	312,315	19.2
Hudson Bay - Flin Flon Mine	177,386	9.01
Minerals Lac* - Terrain Aurifere	100,894	21.8
Cambior Inc.* - Chimo	184,753	6.5
Belmoral* - Ferderber	508,220	5.1
Mines D'Or Lac Bachelor Inc.*	18,632	0
Muscocho - Magino Mine	259,434	4.6
Westmin	1,119,391	11.97
Mines Agnico Eagle Limitee*	458,211	6.1
Muscocho - Magnacon Mine	207,008	8.7
Nanisivik	487,473	8.2
Mine Doyon*	929,454	12.7
Hudson Bay - Namew Lake	220,329	6.35
Cheni	300,488	17.97
Golden Bear	226,722	13.23

* For most of these mines there is no split between underground and surface. The entire operation is included in the statistics.

¹ Closed during 1990

LOST TIME ACCIDENT FREQUENCIES - UNDERGROUND

COMPANY NAME	HOURS WORKED	FREQUENCY
Treminco	105,936	11.4
Les Mines Abcourt Inc.*	15,069	26.5
Renabie Gold Mines Ltd.	393,196	7.1
Les Mines Casa Berardi*	298,955	0.7
Brunswick Mining	1,750,195	8.6
Timminco Metals	443,398	5.0
Hudson Bay - Stall Mine	176,489	11.3
Sullivan	640,744	14.05
Luzenac Inc.	100,578	0
Ressource Miniere Rouyn*	126,102	14.3
Holt - McDermott Mine	442,427	6.8
Canada Talc Ltd.	75,085	0
Aurora Quarrying Ltd.	3,430	0
Minnova - Lac Shortt*	297,184	0.7
Cambior - Lucien C. Beliveau	165,180	2.4
Inco/Thompson - T-1, T-3, Birchtree Man. Division	1,114,758	1.43
Falconbridge Gold Corp.	281,119	2.1
Hudson Bay - Rod Mine	75,075	5.32
Placer Dome Inc. - Detour Lake	660,129	6.1
Les Mines D'Or Kiena Limitee*	401,172	3.0
East West Caribou Mining	168,158	2.4
Placer Dome Inc. - Dome Mine	764,419	1.6
Canamax - Bell Creek	232,453	10.3
Minnova Inc. - Winston Lake	310,753	1.3
Teck Corp. - Division Niobec*	318,815	5.0
Agnico Eagle - Donald J. Laronde*	479,892	4.6
Canamax - Kremzar	178,269	11.2
Sifto Canada Inc.	605,194	6.6

* For most of these mines there is no split between underground and surface. The entire operation is included in the statistics.

LOST TIME ACCIDENT FREQUENCIES - UNDERGROUND

COMPANY NAME	HOURS WORKED	FREQUENCY
Minnova - Opemiska *	442,942	5.9
Giant Yellowknife	834,368	1.9
Golden Patricia Mine	465,517	4.3
Colomac	606,875	2.6
Lac Minerals - Macassa	590,311	2.4
Noranda - Mine Gaspé *	1,057,529	3.4
Polaris	726,231	3.8
Denison Mines Ltd.	2,404,201	4.7
Mattabi Lyon Lake	477,140	4.2
Minnova - Lac Dufault *	388,582	4.6
Teck-Corona - David Bell Mine	467,576	3.8
Placer Dome Inc. - Dona Lake	222,548	5.4
Les Mines Sigma Limitee *	774,353	2.6
Noranda Geco	892,402	1.6
Rio Algom - Quirke	1,271,904	5.0
Eastmaque Gold Mines Ltd.	98,386	4.3
Noranda - Matagami *	586,081	2.7
Cambior Inc. (Mouska) *	112,876	5.3
Corona	125,400	0
Falconbridge Ltd.	4,501,394	2.1
Timmins Nickel Inc.	111,826	14.3
Murray Brook Resources Inc.	72,868	8.2
Tantalum Mining Corp. of Canada	222,252	15.30
Lupin	908,767	3.4
Agnico-Eagle Mines Ltd.	47,825	4.2
Inco - Ontario Division	14,320,420	2.3
Cameco - Key Lake	596,400	1.3
Domtar - Construction	226,933	5.3
Falconbridge - Kidd Div. - Met. Site	3,447,942	1.1
Falconbridge - Kidd Div. - Mine Site	2,124,385	1.5
Rio Algom - Panel	800,375	2.7
Hemlo Gold Mines Inc.	721,729	0.6
The Canadian Salt Co. Ltd.	306,124	0
Amok/Cluff	258,800	0
Placer Dome Inc. - Campbell Mine	961,439	2.5

* For most of these mines there is no split between underground and surface. The entire operation is included in the statistics.

LOST TIME ACCIDENT FREQUENCIES - UNDERGROUND

COMPANY NAME	HOURS WORKED	FREQUENCY
Williams Mine Operating Corp.	1,278,272	0.9
Cigar Lake	100,100	0
Hedman Resources Ltd.	15,914	0
Cameco - Rabbit Lake	293,400	0
Canadian Gypsum Company	134,885	0
Rio Algom - Stanleigh	815,216	3.4
St. Andrew Goldfields	93,435	0
Barrick* - Canflo	243,766	0
Cambior Inc.* (Yvan Vezina)	103,380	0
Heath Steel Mines Ltd.	564,152	0.4
Lac Minerals Ltd. (NB)	4,818	0
Hudson Bay - Callinan Mine	147,588	17.61
Pine Point	19,605	0

* For most of these mines there is no split between underground and surface. The entire operation is included in the statistics.

LOST TIME ACCIDENT FREQUENCIES - SURFACE

COMPANY NAME	HOURS WORKED	FREQUENCY
Lab - Operation Bell	673,620	25.2
Lab - Operation Black Lake	906,616	18.8
Lab - Operation B.C.	733,958	13.4
Q.I.T. - Fer & Titane Inc.	687,172	14.6
Westroc	47,296	0
J.M. Asbestos Inc.	1,006,996	18.5
Algoma Ore	398,046	5.0
Quebec Cartier - Mont Wright	2,528,191	13.2
Sifto Salt	162,600	6.1
Quebec Cartier - Transport	1,334,179	9.0
Holnam West	101,089	13.85
Similco	688,186	13.95
Afton	411,358	7.78
Westroc Industries Limited	4,080	0
Chisel Mine Open Pit	39,946	15.04
Unimin Canada Ltd. - Silica	127,009	3.1
Compagnie Miniere IOC	236,071	4.2
Minnova	185,607	0
Island Copper	1,174,228	5.45
Mines Wabush	810,263	4.2
Quebec Cartier - Bouletage	732,347	4.1
Cassiar	686,533	6.70
Brenda ¹	395,683	3.03
Cominco	657,200	2.1
Sherman Mine ¹	163,289	0
Alcan	4,009,898	4.34
Nickel Plate	361,520	1.11
Unimin Canada Ltd. - Nephton	189,558	3.2
Highland Valley	2,354,949	1.87
Unimin Canada Ltd. - Blue Mountain	168,929	5.9
Bell Copper	636,661	0.94
PCS Cory	237,200	0.8

¹ Closed during 1990

COAL/POTASH

COMPANY NAME	HOURS WORKED	FREQUENCY
Brinco Coal Corporation	135,825	17.67
Prairie Coal:		
Poplar River	313,200	10.8
Costello	106,200	5.6
N.B. Coal Ltd.	401,022	4.5
Greenhills	1,227,088	8.15
Fording	1,789,503	8.05
E.C.C. Boundary Dam	146,900	5.4
Utility	166,700	5.9
Denison-Potacan Potash	959,087	7.7
Westar-Balmer	2,716,392	8.10
Byron Creek	577,775	7.96
N.B. Coal Truckers	54,432	0
Crows Nest	995,440	3.42
Bullmoose	688,094	1.74
E.C.C. Beinfait	167,200	2.4
Potash Company of America	669,393	2.4
Potash Company of America (Sask.)	234,600	0.8
Sussex Security & Dionne	20,922	0
Cameco - Jasper	72,000	2.8
Claude Resources	28,200	0
FM - Asask	28,600	0
FM - Cabri	43,500	9.2
Millar Western	29,100	13.7
Ormiston Mining	35,400	5.6
SM - Chaplin	79,600	2.5
SM - Ingebrigt	64,400	3.1
Cavern Wells	32,500	6.1
Altus	15,500	0

LOST TIME ACCIDENT FREQUENCIES - SURFACE

COMPANY NAME	HOURS WORKED	FREQUENCY
Inco - Thompson - Open Pit	212,288	.94
PCS Lanigan	452,000	0.4
Gibraltar	678,736	3.83
PCS Allan	479,400	0.4
Adams Mine ¹	155,828	8.9
Endako	472,269	0.42
Central Canada Potash	730,500	0.5
Kalium	333,600	0
Equity Silver	368,865	0.54
I.M.C. - K1	700,400	0
Westmin-Premier	354,483	0
Lab - Siege Social	199,080	0
PCS Rocanville	501,200	0.4
I.M.C. - K2	1,014,300	1.2
Inco - Thompson - Mill	2,316,129	0.77
Noranda - Horne - Smelter	2,022,673	11.3
Les Mines Camchib Inc.	169,100	5.9
Cambior Inc. - Pierre Beauchenin	276,871	5.1
Les Mines Selbaie	1,214,153	1.0
Brunswick Smelting	709,011	5.1

¹ Closed during 1990

CONTRACTORS/DIAMOND DRILL

COMPANY NAME	HOURS WORKED	FREQUENCY
Forage St-Lambert Ltee	16,363	12.2
Dominik (1981)	38,360	26.1
Forage Moderne (1985) Inc.	57,794	34.6
Advance Diamond Drilling Ltd. ¹	23,372	42.8
Forages Garant & Freres Inc.	142,035	11.3
Forage B.F.M.	37,937	5.3
Ram Raising Ltd. - Alimak	14,807	0
Longyear Canada Inc.	16,801	23.81
Longyear Canada Inc. (Ont.)	199,853	16.0
Smook Bros.	87,116	4.59
Fraser River Pile & Dredge	43,766	13.71
Ross-Finlay Limitee	272,140	4.4
Heath & Sherwood (1986)	188,430	6.4
Forage A Diamant Phillepon	46,415	12.9
Boart Canada Inc.	124,121	9.7
Mid West Diamond Drilling	217,400	12.88
Mid West Diamond Drilling (Ont.)	79,056	5.1
Thyssen	383,900	6.8
N. Morissette Canada Inc. (PQ)	168,371	13.1
MacIsaac Mining & Tunnelling Co.	63,919	21.91
Tonto	157,200	10.1
N. Morissette Canada Inc. (Ont.)	313,416	11.5
MacIsaac Mining & Tunnelling (PQ)	8,873	0
MacIsaac Mining & Tunnelling (Ont.)	1,424,132	8.0
Wescore Drilling Limited	41,923	9.54
Barron	9,653	0
Bradley, Freres Limitee	204,411	4.9

¹ Closed during 1990

CONTRACTORS/DIAMOND DRILL

COMPANY NAME	HOURS WORKED	FREQUENCY
BLM Mining Services Ltd.	49,406	8.1
Mining Corp. of Canada Ltd.	36,409	0
Bradley Bros. Ltd.	149,791	9.3
Ram Raising Ltd.	26,647	0
Ram Raising Ltd.	7,365	0
Ram Raising Ltd. (Ont.)	164,553	4.9
Catalytic Mtce.	176,800	2.3
Ross-Finlay	77,213	0
Aurora Quarrying (Man.)	235,790	.85
J.S. Redpath Ltd.	759,999	1.6
J.S. Redpath Ltd. (Quebec)	28,662	0
Aurora - Quarrying	9,000	0
J.S. Redpath (NB)	157,100	4.1
J.S. Redpath Limited (Man.)	89,112	8.99
St. Lambert Drilling	41,167	4.9
Aurora Quarrying (Ont.)	174,048	2.3
Canadian Mine Development	149,399	8.4
Canadian Mine Development (Ont.)	66,306	0
Dynatec Mining Ltd.	327,350	3.1
Mindecon Inc.	146,650	0
Manroc Developments Inc.	27,999	0
Alex MacIntyre & Associates Ltd.	109,078	0
Alex MacIntyre & Associates Ltd. (Ont.)	77,380	7.8
Graham Mining Ltd.	163,996	0
Atomic Energy Research	132,556	1.51

APPENDIX 2

NATIONAL MINE ACCIDENT

DATABASE

MINE FATALITIES

IN

CANADA

1978 - 1990

MINE FATALITIES IN CANADA

1978 – 1990

Mineral Policy Sector
Energy, Mines and Resources

March 1991

MINING FATALITIES - NEWFOUNDLAND

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	1	0	0	1	-	-	-	1	
1979	1	0	1	0	-	-	-	1	
1980	0	0	0	0	-	-	-	0	
1981	1	0	1	0	-	-	-	1	
1982	0	1	0	1	-	-	-	1	
1983	0	0	0	0	-	-	-	0	
1984	1	0	0	1	-	-	-	1	
1985	1	0	0	1	-	-	-	1	
1986	0	0	0	0	-	-	-	0	
1987	0	1	0	1	-	-	-	1	
1988	1	0	0	1	-	-	-	1	
1989	1	0	0	1	-	-	-	1	
1990	2	0	2	0	-	-	-	2	
TOTAL	9	2	4	7	-	-	-	11	

NOTE: Excludes deaths by natural causes, and those off a minesite such as motor-vehicle accidents.
 - Not reported.

MINING FATALITIES - NOVA SCOTIA

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	2	0	2	0	0	0	0	-	2
1979	0	0	0	0	0	0	0	-	0
1980	1	1	1	0	1	0	0	-	2
1981	2	0	0	0	0	2	0	-	2
1982	0	0	0	0	0	0	0	-	0
1983	0	0	0	0	0	0	0	-	0
1984	0	0	0	0	0	0	0	-	0
1985	0	0	0	0	0	0	0	-	0
1986	0	0	0	0	0	0	0	-	0
1987	1	0	0	0	0	0	0	-	1
1988	1	0	0	0	0	1	0	-	1
1989	0	0	0	0	0	0	0	-	0
1990	0	0	0	0	0	0	0	-	0
TOTAL	7	1	3	0	1	4	0	-	8

NOTE: These figures do not include the fatalities which occurred at the Cape Breton Development Corporation which comes under federal jurisdiction.
 -- Not reported.

MINING FATALITIES - CAPE BRETON DEVELOPMENT CORPORATION

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	-	-	-	-	-	-	-	-	-
1979	12	0	12	-	0	-	-	0	12
1980	0	0	0	-	0	-	-	0	0
1981	0	0	0	-	0	-	-	0	0
1982	1	0	1	-	0	-	-	0	1
1983	2	0	0	-	2	-	-	0	2
1984	2	0	2(1)	-	0	-	-	0	2
1985	2	0	1	-	1(2)	-	-	0	2
1986	0	0	0	-	0	-	-	0	0
1987	0	0	0	-	0	-	-	0	0
1988	1	0	0	-	1	-	-	0	1
1989	0	0	0	-	0	-	-	0	0
1990	0	0	0	-	0	-	-	0	0
TOTAL	20	0	16	-	4	-	-	0	20

NOTE: (1) Among the two fatalities reported, one was a heart attack ascribed to heavy work.

(2) Security guard attempting to apprehend pilferer was run down.
- Not reported.

MINING FATALITIES - NEW BRUNSWICK 1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR, AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	0	0	0	0	0	-	-	0	0
1979	0	0	0	0	0	-	-	0	0
1980	2	0	1	0	1	-	-	0	2
1981	0	1	0	0	1	-	-	0	1
1982	0	1	0	0	1	-	-	0	1
1983	1	0	0	1	0	-	-	0	1
1984	2	0	2	0	0	-	-	0	2
1985	1	1	2	0	0	-	-	0	2
1986	1	1	2	0	0	-	-	0	2
1987	1	0	1	0	0	-	-	0	1
1988	2	0	2	0	0	-	-	0	2
1989	2	0	2	0	0	-	-	0	2
1990	0	0	0	0	0	-	-	0	0
TOTAL	12	4	12	1	3	-	-	0	16

NOTE: Excludes fatalities attributed to heart attacks as well as sand and gravel pits and quarries which are under general safety.
- Not reported.

MINING FATALITIES - QUÉBEC

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	10	1	2	2	3	4	0	1(1)	11
1979	9	1	3	4	2	1	0	0	10
1980	15	2	11	2	0	2	2(2)	0	17
1981	5	2	1	3	0	1	2	3(1)	7
1982	1	1	2	0	0	0	0	0	2
1983	1	3	2	0	0	0	2	0	4
1984	4	1	4	0	0	1	0	1(1)	5
1985	2	2	2	1	1	0	0	0	4
1986	6	2	6	0	1	1	0	0	8
1987	6	3	7	0	0	2	0	0	9
1988	4	2	0	0	3	3	0	0	6
1989	11	1	6	1	1	4	0	0	12
1990	9	0	4	2	0	3(3)	0	0	9
TOTAL	83	21	50	15	11	22	6	5(1)	104

NOTE: (1) Fatalities which occurred during transportation from residence to worksite are not included in Total figures.

(2) U/G exploration.

(3) Preliminary data from CSST.

-- Not reported.

MINING FATALITIES - ONTARIO

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	14	3	8	0	4	5	0	0	17
1979	8	1	5	0	2	2	0	0	9
1980	15	5	12	0	4	4	0	0	20
1981	11	3	9	0	2	3	0	0	14
1982	8	1	5	0	2	2	0	0	9
1983	6	2	6	0	1	1	0	0	8
1984	12	4	13	0	1	2	0	0	16
1985	5	5	8	0	2	0	0	0	10
1986	10	2	9	0	2	1	0	2	12
1987	16	7	15	1	3	3	1	0	23
1988	11	6	7	0	7	1	2	2	17
1989	8	3	8	0	2	0	1	4	11
1990	7	2	7	0	2	0	0	0	9
TOTAL	131	44	112	1	34	24	4	8(1)	175

NOTE: Includes fatalities in uranium mines associated with conventional health and safety matters.

(1) These are not covered by mining regulators and are not included in Total figures.

MINING FATALITIES - MANITOBA 1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	2	0	2	0	0	0	-	0	2
1979	4	0	4	0	0	0	-	0	4
1980	3	3	5	0	0	1	-	0	6
1981	0	1	0	1	0	0	-	0	1
1982	2	1	2	1	0	0	-	0	3
1983	4	0	4	0	0	0	-	0	4
1984	1	0	1	0	0	0	-	0	1
1985	6	0	4	0	2	0	-	0	6
1986	1	1	2	0	0	0	-	0	2
1987	2	0	1	0	1	0	-	0	2
1988	0	4	3	1	0	0	-	0	4
1989	0	2	1	0	0	1	-	0	2
1990	1	0	1	0	0	0	-	0	1
TOTAL	26	12	30	3	3	2	-	0	38

NOTE: Deaths by natural causes and proven suicides are excluded.
- Not reported.

MINING FATALITIES - SASKATCHEWAN

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY						OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	SOLUTION MINING FACILITIES	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	1	0	1	0	0	0	0	0	-	1
1979	2	0	2	0	0	0	0	0	-	2
1980	4	0	4	0	0	0	0	0	-	4
1981	4	0	4	0	0	0	0	0	-	4
1982	1	0	1	0	0	0	0	0	-	1
1983	1	0	1	0	0	0	0	0	-	1
1984	1	2	2	0	0	1	0	0	-	3
1985	2	0	2	0	0	0	0	0	-	2
1986	2	0	1	1	0	0	0	0	-	2
1987	2	1	2	0	0	0	0	1	-	3
1988	0	0	0	0	0	0	0	0	-	0
1989	0	1	1	0	0	0	0	0	-	1
1990	0	1	0	0	1	0	0	0	-	1
TOTAL	20	5	21	1	1	1	0	1	-	25

NOTE: Includes fatalities in uranium mines associated with conventional health and safety matters.
- Not reported.

MINING FATALITIES - ALBERTA

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	0	0	0	0	0	0	0	-	0
1979	2	0	2	0	0	0	0	-	2
1980	5	0	4	0	1	0	0	-	5
1981	1	0	0	0	0	1	0	-	1
1982	1	0	0	0	0	1	0	-	1
1983	1	0	1	0	0	0	0	-	1
1984	2	0	1	0	1	0	0	-	2
1985	0	0	0	0	0	0	0	-	0
1986	0	0	0	0	0	0	0	-	0
1987	1	0	1	0	0	0	0	-	1
1988	0	0	0	0	0	0	0	-	0
1989	0	0	0	0	0	0	0	-	0
1990	0	0	0	0	0	0	0	-	0
TOTAL	13	0	9	0	2	2	0	-	13

NOTE: Only fatalities investigated by Occupational Health and Safety are included. Includes underground and surface coal mining, sands, gravel and quarry but does not include oil sands. Excludes heart attacks and other disease related fatalities.

- Not reported.

MINING FATALITIES - BRITISH COLUMBIA

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	2	0	2	0	0	0	0	-	2
1979	1	3	2	2	0	0	0	-	4
1980	2	0	1	0	1	0	0	-	2
1981	3	1	2	1	1	0	0	-	4
1982	6	2	4	2	2	0	0	-	8
1983	3	4	2	0	4	0	1	-	7
1984	1	1	1	1	0	0	0	-	2
1985	4	2	1	3	1	0	1	-	6
1986	0	1	0	0	1	0	0	-	1
1987	4	3	2	2	1	1	1	-	7
1988	4 ^r	6 ^r	2	2 ^r	1 ^r	1	4	-	10 ^r
1989	2	4	5	1	0	0	0	-	6
1990	4	1	3	1	1	0	0	-	5
TOTAL	36	28	27	15	13	2	7	-	64

NOTE: Excludes deaths by natural causes, proven suicides and homicides, those off a minesite such as helicopter crashes and motor-vehicle accidents. Fatalities that might have occurred at a placer mine are covered under Quarry (Sand and Gravel).

- Not reported.
^r Revised data.

MINING FATALITIES - NORTHWEST TERRITORIES

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	-	-	-	-	-	-	-	-	-
1979	2	0	1	1	0	-	-	-	2
1980	2	1	2	1	0	-	-	-	3
1981	1	0	0	1	0	-	-	-	1
1982	4	0	2	0	2(1)	-	-	-	4
1983	0	0	0	0	0	-	-	-	0
1984	3	0	2	0	1	-	-	-	3 ¹
1985	2	1	2	0	1(2)	-	-	-	3
1986	1	0	1	0	0	-	-	-	1
1987	1	0	1	0	0	-	-	-	1
1988	3	0	3	0	0	-	-	-	3
1989	0	0	0	0	0	-	-	-	0
1990	1	0	1	0	0	-	-	-	1
TOTAL	20	2	15	3	4	-	-	-	22

NOTE: (1) One is a surface road fatality (hit by pickup truck) and the other is an ice road fatality (grader went through ice).

(2) Fatality on a surface road.

- Not reported.

MINING FATALITIES - YUKON

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	0	0	0	0	0	0	0	-	0
1979	1	0	0	1	0	0	0	-	1
1980	2	0	1	0	0	1	0	-	2
1981	2	0	1	0	0	1	0	-	2
1982	0	0	0	0	0	0	0	-	0
1983	0	0	0	0	0	0	0	-	0
1984	0	0	0	0	0	0	0	-	0
1985	0	0	0	0	0	0	0	-	0
1986	0	0	0	0	0	0	0	-	0
1987	0	0	0	0	0	0	0	-	0
1988	1	0	1	0	0	0	0	-	1
1989	1	0	0	1	0	0	0	-	1
1990	0	1	0	0	0	0	1	-	1
TOTAL	7	1	3	2	0	2	1	-	8

NOTE: Fatalities that might have occurred at a placer mine are covered under Quarry (Sand and Gravel).
 - Not reported.

MINING FATALITIES - CANADA

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY						OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION	OTHER		
1978(1)	32	4	17	3	7	9	0	0	1(2)	36
1979	42	5	32	8	4	3	0	0	0	47
1980	51	12	42	3	8	8	2	0	0	63
1981	30	8	18	6	4	8	2	0	3(2)	38
1982	24	7	17	4	7(3)	3	0	0	0	31
1983	19	9	16	1	7	1	3	0	0	28
1984	29	8	28(4)	2	4	3	0	0	1(2)	37
1985	25	11	22	5	8(5),(6)	0	1	0	0	36
1986	21	7	21	1	4	2	0	0	2(7)	28
1987	32	15	30	4	5	5	3	0	0	47
1988	27r	17r	18	4r	11r	5	6	0	2(8)	44r
1989	25	11	23	4	3	5	1	0	4(9)	36
1990	24	5	18	3	3	3	1	1(10)	0	29
TOTAL	381	119	302	48	75	55	19	1	13(11)	500

NOTE: See attached.
r Revised data.

NOTE:

- (1) Fatalities at DEVCO and in Northwest Territories were not reported for 1978.
- (2) Fatalities which occurred during transportation from residence to worksite are not included in Total figures.
- (3) Includes two fatalities in Northwest Territories, one of which occurred on a surface road (hit by truck) and the other one on an ice road (grader went through ice).
- (4) Includes one fatality which is a heart attack ascribed to heavy work which occurred at DEVCO.
- (5) Includes one fatality in Northwest Territories which occurred on a surface road.
- (6) Includes as well a fatality which occurred at DEVCO where a security guard was run down while attempting to apprehend a pilferer.
- (7) Includes a highway accident and a frozen prospector in Ontario which are not included in Total figures.
- (8) Includes a civilian injured by flyrock and a drowning in Ontario which are not included in Total figures.
- (9) Includes a self-employed worker at an abandoned surface plant, a worker killed while felling trees, a highway accident and a civilian killed while crossing railway tracks.
- (10) Fatality in Saskatchewan which occurred at solution mining facility.
- (11) All fatalities in this category are excluded from Total figures.

SOURCE:

Mine fatalities as reported by Chief Inspectors or corresponding authority of every mining jurisdiction in Canada. Compiled by EMR, January 1991.

APPENDIX 3

NATIONAL MINE ACCIDENT

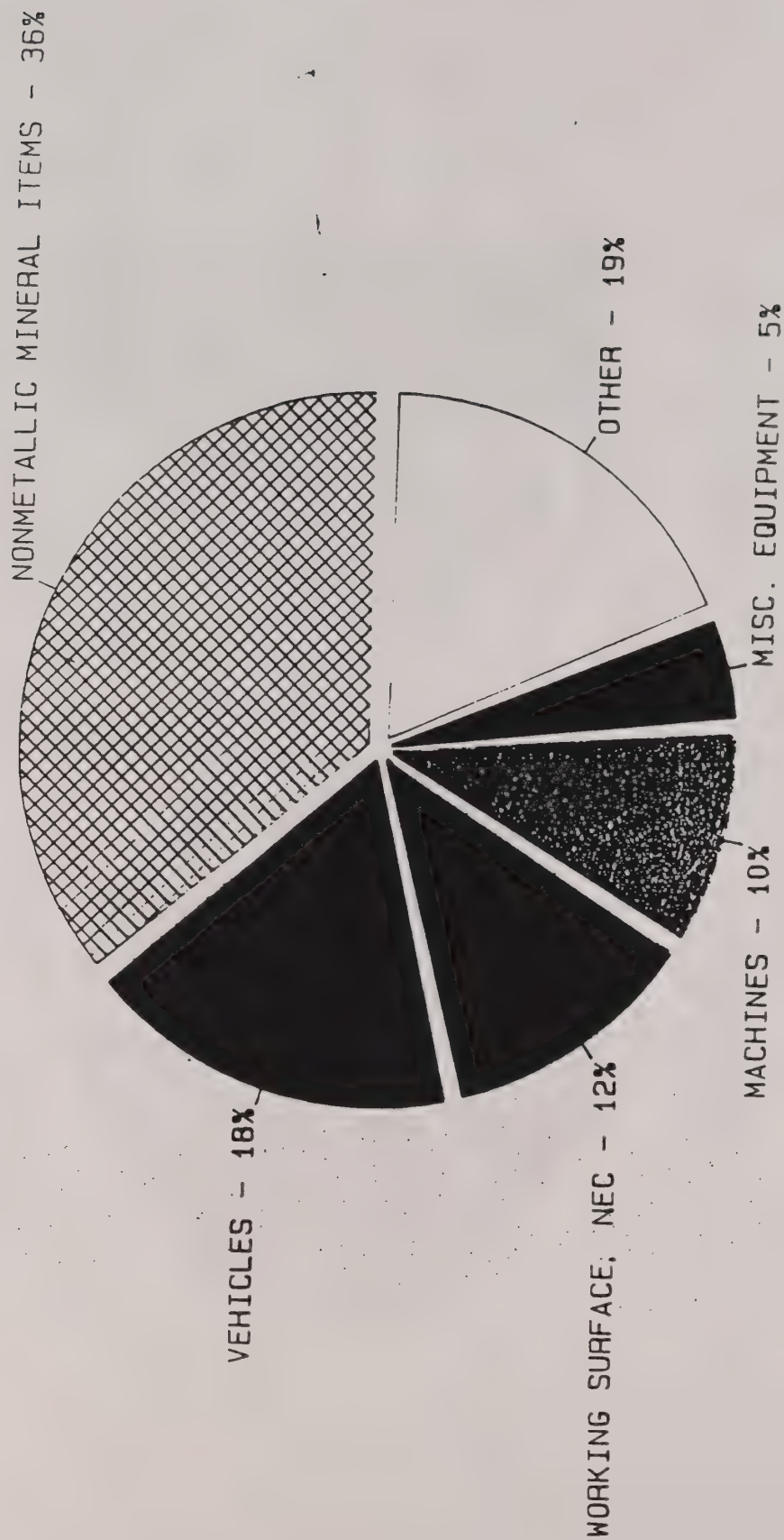
DATABASE

ACCIDENT AND FATALITY

FIGURES

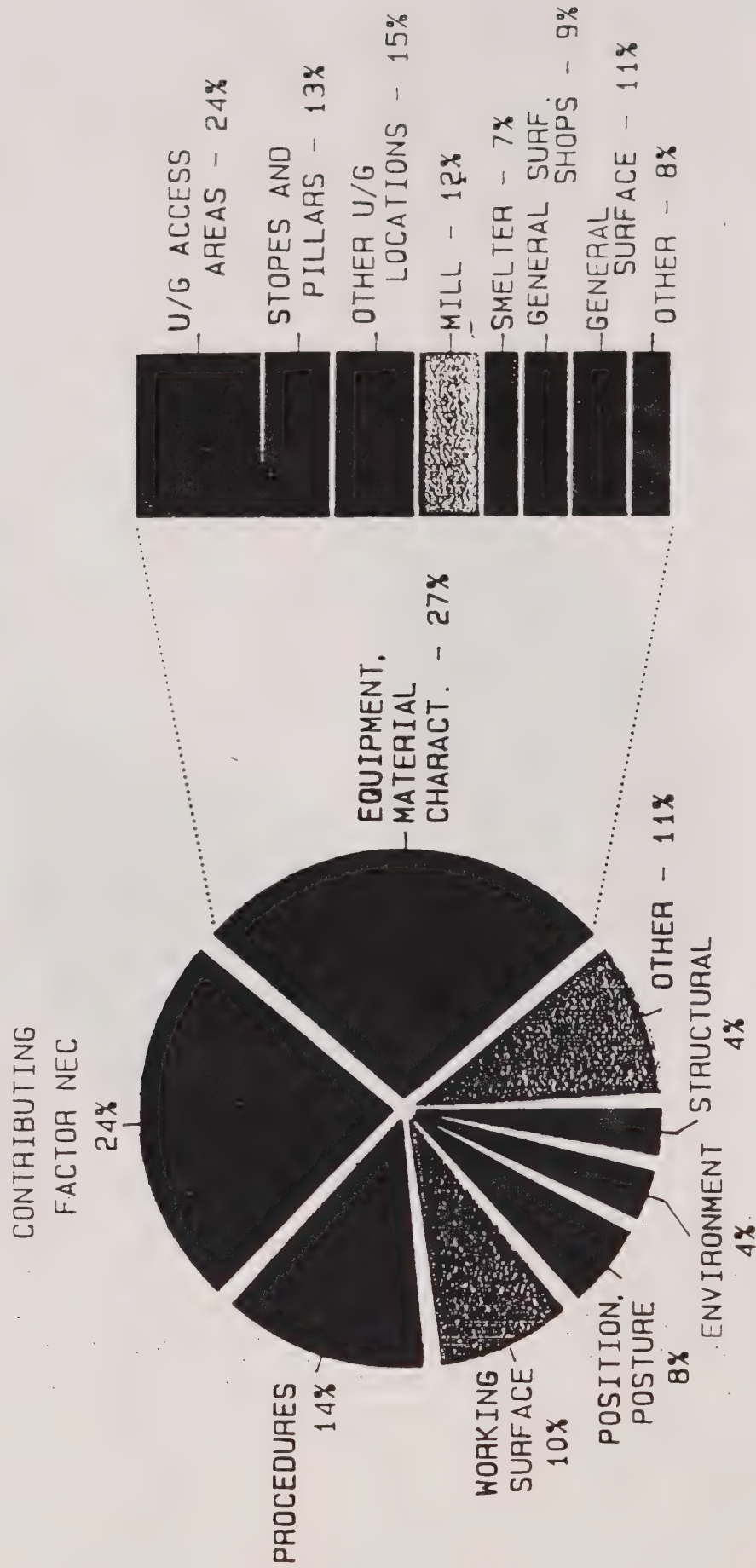
FATAL INJURIES BY SOURCE OF ACCIDENT

1986-90



97 RECORDS

TIME-LOSS INJURIES BY CAUSE AND LOCATION, 1990



CAUSE OF THE ACCIDENT

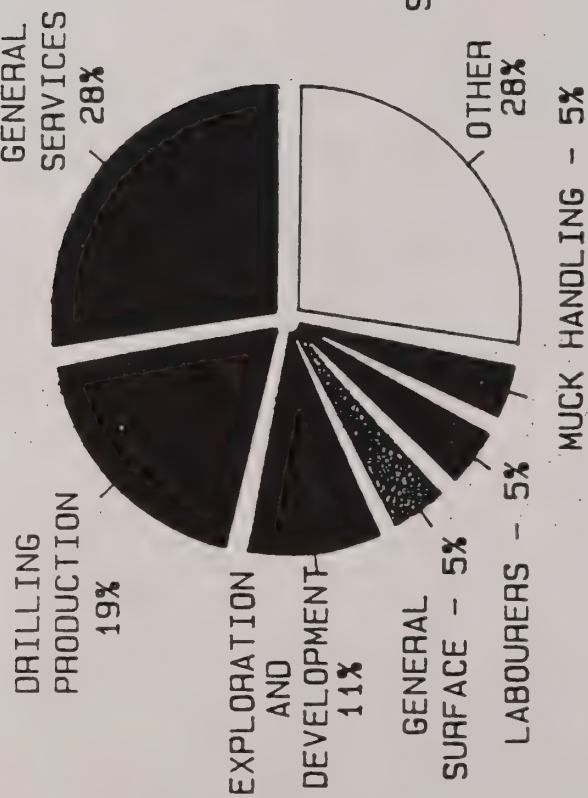
606 RECORDS

LOCATION OF THE ACCIDENT

163 RECORDS

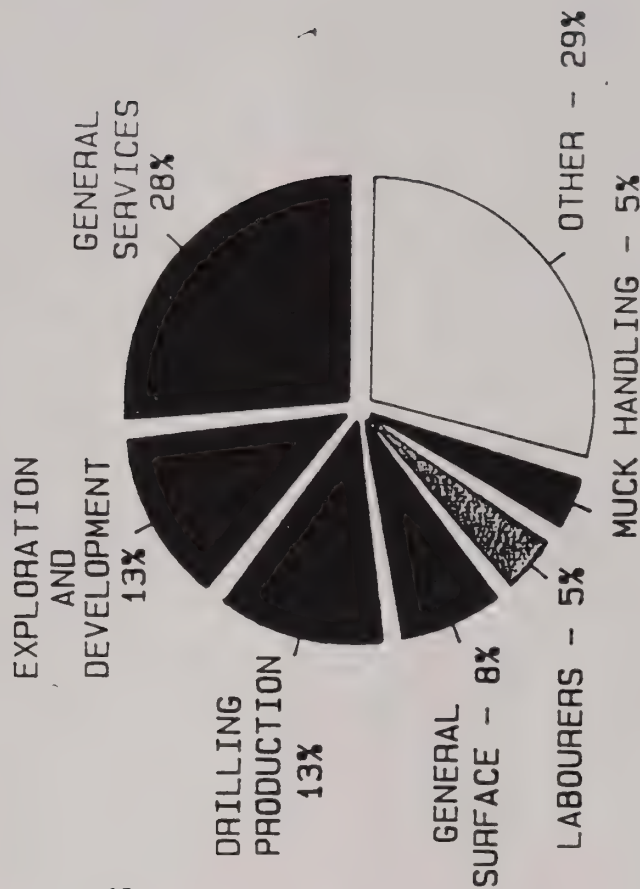
TIME-LOSS INJURIES BY OCCUPATION

1986-89



6,409 RECORDS

1990

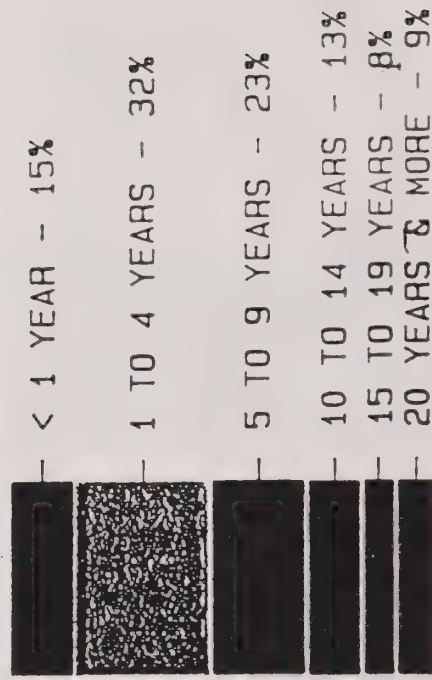


1,862 RECORDS

TIME-LOSS INJURIES OF DRILLING PRODUCTION WORKERS BY YEARS OF EXPERIENCE

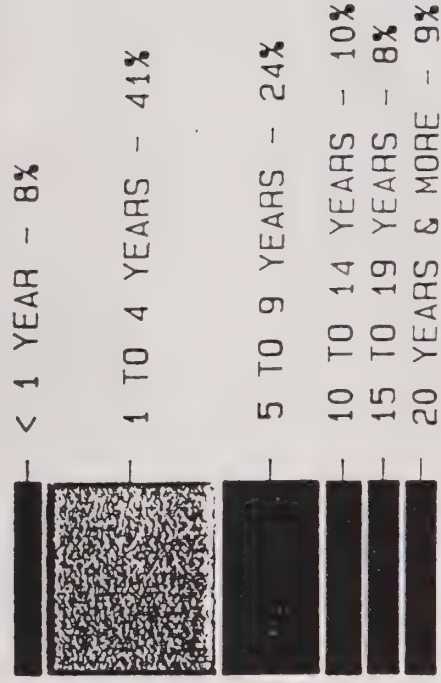
1986 TO 1989
1,074 RECORDS

DRILLING
PRODUCTION
OCCUPATIONS
19%



1990
185 RECORDS

DRILLING
PRODUCTION
OCCUPATIONS
13%



YEARS OF EXPERIENCE

48TH ANNUAL MINES MINISTERS' CONFERENCE

Annual Report
1990

Association of Chief Inspectors of Mines

HALIFAX, Nova Scotia
September 22-24, 1991

VEUILLEZ NOTER

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INTRODUCTION

MEMBERSHIP

Membership in the Association of Chief Inspectors of Mines consists of the senior regulators of mining health and safety from every province, territory, Labour Canada, Atomic Energy Control Board, the Federal Explosives Branch and representatives of Energy, Mines and Resources Canada (EMR) and CANMET.

MISSION STATEMENT

The Association of Chief Inspectors of Mines has undertaken to:

- a) foster uniformity in legislation
- b) develop uniform codes of practice and standards
- c) exchange information on technology and experience in health and safety in mines
- d) facilitate cooperation between mining jurisdictions across Canada in emergency preparedness, response and training
- e) to identify and address health and safety problems of mutual concern.

STRATEGIC ACTIVITIES - 1990

Chief Inspectors of Mines met on two occasions during 1990 to exchange information and collaborate on issues of common interest. These issues included the effect of extended workdays at mines on worker health and safety, regional and national strategies for mine rescue and emergency preparedness, mining fatalities, accident and injury statistics, development of C.S.A. standards for mining equipment, processes and procedures.

EXTENDED WORKDAYS AT MINES

Chief Inspectors of Mines, in conjunction with Energy Mines and Resources Canada and with the assistance of the United States Bureau of Mines and Occupational Health specialists from Simon Fraser University, have completed two studies of the fatigue, health effects from exposure to diesel engine contaminants and stress effects. The mines, both underground operations, were the Holt McDermot Mine in Ontario and the Westmin H.W. Mine on Vancouver Island, B.C. These studies are the first of their type to be conducted in any industrial operations in the world and because of their comprehensive nature, are breaking new ground in understanding the stress, fatigue and the health effects of underground mine contaminants for workers on regular 8 hour shifts of varying schedules and when working 10 hour and 12 hour shifts on shorter schedules.

Chief Inspectors hope to continue fostering new research in this area in order to ensure the protection of worker health, safety and quality of working life and at the same time, facilitate industry competitiveness through productivity gains.

NATIONAL MINE RESCUE AND EMERGENCY PREPAREDNESS

Chief Inspectors, through the organization of a committee of Mine Rescue Coordinators, continue to strive for greater standardization of rescue training and procedures. A national database inventory of available equipment and trained personnel has been developed. Each jurisdiction has identified key contact persons who would facilitate the provision of mine rescue assistance in the event of an emergency.

MINING FATALITIES, ACCIDENTS AND INJURY STATISTICS

Energy Mines and Resources Canada (EMR) and Chief Inspectors have continued to build up the number of participating jurisdictions and the National Accident Database. A common and detailed electronic recording system prototyped by British Columbia and refined by system representatives from each province is now operational and will facilitate input to the National Database developed and maintained by EMR. As more years of data and a broader base is developing, Chief Inspectors are confident they will be able to conduct more sophisticated trend analysis to identify prevention targets.

C.S.A. STANDARDS

Chief Inspectors continued a high level of participation in the tripartite mining sector steering committee and subcommittees development of new standards for mining equipment, processes and procedures. Particular areas of concern are Hoisting Rope Testing, Standards and Removal Criteria and Off-Highway Haulage Equipment.

HEALTH AND SAFETY REGULATION

Chief Inspectors examined trends in health and safety regulations, codes of practice and inspection. A representative of Chief Inspectors participated in two International Labour Organization meetings during 1990. Canada sponsored the delegate to a March 1990 meeting of 56 countries to the 5th Tripartite meeting to examine working conditions in mines other than coal mines. The I.L.O. sponsored the delegate to a September 1990 meeting of 21 world experts to critique a Code of Practice for Open Cast Mines. The Canadian delegate chaired the meeting.

Also worthy of mention is the report that the Russian Inspectorate has chosen to translate and use the British Columbia Mine Health, Safety and Reclamation Code as a standard for their mine regulation.

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ALBERTA

Chief Inspector - Anant Prasad, P.Eng.

MISSION STATEMENT

The mission of Alberta Occupational Health and Safety is "to enhance the health and safety of Alberta's workers. We work with many groups and individuals to accomplish this mission but our client is the worker.

MANDATE

Promote health and safety, provide advice and assistance, monitor worksite health and safety program, enforce applicable acts and regulations, and in doing so reduce accidents and injury frequency and severity at the worksites covered by this program.

SIZE OF ORGANIZATION/STRUCTURE

Alberta has been divided into six regions. The mining program has been assigned to the North Central Region where most of the mines and quarries are located and include underground and surface mines, quarries, oil sands and AOSTRA (underground test facility).

Under the recent reorganization, Anant Prasad has been appointed as Manager, Mining Program, reporting to the Regional Director, North Central Region. He is also appointed Director of Mines under the Quarries Act and Regulation. Two Mining Specialists and one part-time Mechanical Specialist are assigned to the Mining Program. Other Specialists' (Electrical, Mechanical Engineer, Hygienist) help is obtained on an as-required basis, either through internal or external resources.

SIZE AND SCOPE OF INDUSTRY

A total of thirty-eight mines and quarries which include small operations, AOSTRA, and one underground mine operate in Alberta, the main ones being coal and oil sands. Approximately 9,700 people are employed in the mining industry which includes oil sands operations (approximately 6,800) in Fort McMurray.

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SAFETY AWARD

Smoky River Coal Ltd. won Canada Trophies for 1990 in the Coal Mines Category. It also won this award in 1986, 1988 and 1989.

Recipient of the Special Award Certificate for exemplary safety records were:

- Fording Coal Ltd., Genesee Coal Mine for zero frequency since 1988
- Alberta Oil Sands Technology and Research Authority - Underground test facilities for zero frequency
- Syncrude Canada Ltd. for consistently low injury frequency under difficult conditions.

COAL

Alberta's raw coal production increased slightly in 1990 to 35.2 million tonnes from 35 million tonnes in 1989. Deliveries of marketable coal declined from 30.8 million tonnes to 30.4 million tonnes because of reduced volume going to Ontario Hydro as well as Japanese and Korean markets. This weakening Coal demand resulted in workforce reductions at several of Alberta's export-oriented mines.

Alberta's electric utilities consume about 70% of the coal produced in Alberta, with the remainder going to markets in Ontario and offshore.

On the development side, Cardinal River Coal Ltd.'s mine near Hinton and Luscar Ltd.'s Coal Valley mine near Edson applied to the ERCB to extend their existing mine permit boundaries to include three major new areas. These extensions are required to maintain continued coal production at existing rates over the next decade. A similar boundary extension to Smoky River Coal Ltd. for its No. 12 Mine South, near Grande Cache was also granted.

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Currently, an updating of the ultimate gas potential for Alberta is being completed. Included in this review will be some preliminary estimates of the potential for non-conventional gas sources such as coal-bed methane. Extensive coal deposits in the province are both a reservoir for and source of methane gas, the result of millions of years of heating and compaction of vegetation.

In Alberta, coal-bed methane development is still at an early stage of investigation. Nevertheless, environmental concerns have been raised about the closer spacing that may be required for coal-bed methane wells, the water usually produced with the gas and the possibility of such developments occurring in the Foothills and Mountains regions of the province.

OIL SANDS

Two huge oil sands quarries, Syncrude and Suncor, are operational in the Fort McMurray area. Advances in science now hold the promise of more efficient and environmentally sound oil sands developments. Dealing effectively with the enormous scale of oil sands projects is an ongoing challenge for all.

Syncrude Canada Ltd. ended 1990 with a record production of 9 million cubic metres of synthetic crude oil, up nearly half a million cubic metres from 1989. Suncor Inc. recorded its third-best year of production since start-up in 1967, producing about 3 million cubic metres of synthetic crude oil.

More than two-thirds of Alberta's bitumen is refined at two upgrading plants in Fort McMurray. The remainder is used for making asphalt and tar for shingles, roofing, and other water proofing materials, or is exported to refineries in Ontario and the United States.

MAJOR INITIATIVES

1. The review of the Coal Mine Safety Regulation has taken place. Comments and suggestions resulted from the tripartite meeting are being reviewed internally and will be put into a technical draft. The proposal is to send this completed technical draft to all the participants for final review and comments. The final documents will be submitted to the Legislative Council sometime in the fall for their review.
 2. A continuing project during 1990 was the thick-seam mining demonstration at the underground mine of Smoky River Coal at Grande Cache. This project is designed to assess the technical feasibility of an integrated mining system capable of extracting coal seams in excess of 3.66 metres (12 feet) thick in a single pass. As part of this initiative a few members of the project's Technical Advisory Committee toured South Africa, Australia and Austria to view and assess equipment that may be included in this project.
- Throughout 1990, work proceeded on the design of the \$4-billion OSLO (Other Six Lease Operators) commercial oil sands mining project. Addressing the many issues of such a massive project was the responsibility of the ERCB-initiated OSLO Application Review Team (OSLO ART) and its eight sub-committees. These groups include representatives from industry, federal and provincial governments, municipalities, and aboriginal and special interest groups. This preparatory work is essential to resolve technical, environmental, social and aboriginal issues in advance of a public hearing. OSLO ART plans to submit a major report and recommendations to the Board in the spring of 1991.

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- In September 1990, OSLO applied to the ERCB to scale up its earlier Dredging and Cold Water Extraction Process from a field test to a full-scale pilot project. Known as the Mildred Lake Pilot Project, this dredging and froth preparation process differs markedly from the hot water extraction method now in use at Suncor and Syncrude.
- OSLO also operated a pilot plant at the Petro-Canada Inc. research facility in northeast Calgary, testing various water-based extraction processes. A Warm Water Extraction Process has now been selected for further testing.
- Also in 1990, Syncrude started the first phase of field trials to evaluate the feasibility of capping mature oil sands tailings sludge with natural water. Sludge capping is one of a number of reclamation strategies for oil sands tailings now being investigated by both Syncrude and Suncor.
- In the Fort McMurray area, the Alberta Oil Sands Technology and Research Authority continued to develop its Underground Test Facility Project with the construction of additional tunnels in preparation for drilling six new horizontal wells.

MAJOR CHANGES IN APPROACH

Alberta Occupational Health and Safety is looking into ways of doing business differently and placing more emphasis on a consultative approach. The approach will be to help employers assess how their places of business are dealing with health and safety and help to improve performance. Emphasis will be placed on small business employers in high hazard industries. Other programs will focus on programs for new workers.

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BRITISH COLUMBIA

Director/Chief Inspector of Mines - Ralph W. McGinn

Ministry of Energy, Mines & Petroleum Resources -
Province of British Columbia
Mineral Resources Division
Resource Management Branch

Operates under the Mines Act (1989) and
Health, Safety & Reclamation Code

MANDATE

To provide for the protection of employees and all other persons from undue risk to their health and safety arising out of or in connection with mining activity.

To provide for the protection and reclamation of the land and watercourses affected by mining and to monitor the extraction of mineral and coal resources to ensure maximum extraction with a minimum of environmental disturbance taking into account sound engineering practices and prevailing economic conditions.

SIZE OF ORGANIZATION/STRUCTURE

In 1990 the Branch had 58 regular full-time employees. Two managers, (Safety & Health Standards and Inspection & Enforcement, Permits & Approvals) report to the Chief Inspector, who in turn reports to an Assistant Deputy Minister. Each manager has a group of specialists reporting to him in Victoria and in the seven Regional Offices. In early 1991 the Branch reorganized into two units and has received authorization to add 12 regular full-time employees.

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SIZE AND SCOPE OF INDUSTRY

	<u>Number</u>	<u>Workforce</u>
Major Open Pit and Underground Mines	25	11,738
Placer Mines	500	1,500
Mines In Exploration Development Phase	1,650	4,800
Sand and Gravel Pits & Quarries	2,000	6,000
Major Projects in Mine Development Review Process	15	

MAJOR INITIATIVES/CHANGES IN APPROACH OR LEGISLATION

Mines Act and Regulations - Bill 56, the Mines Act passed 3rd reading of the legislature in 1989. The Act and its attendant Health, Safety and Reclamation Code were proclaimed in the spring of 1990.

Major Change

- * Increased responsibility for joint health and safety committees to self-regulate
- * Decentralized/Regionalized decision making and permitting
- * Increased environmentally responsive mine abandonment by providing clearer guidelines and improved mechanisms for industry-funded reclamation
- * Provides conflict resolution mechanism for cases of hazardous work refusal. Discrimination prohibited and rectified
- * Consistency and parity with other jurisdictions
- * Legislation reorganized for clarity, uncertainties removed and written in concise plain English
- * Strengthens formal involvement of other ministries and government agencies in the approval and permitting process. (One window approach)
- * Previously mandatory medical surveillance programs become voluntary and removal from hazard (dust) exposure no longer mandatory
- * Extensive improvement in Industrial Hygiene regulation

MINE DEVELOPMENT ASSESSMENT ACT

The Mine Development Assessment Act legislating the Mine Development Review Process received third reading in the legislature in 1990. The Act is expected to be proclaimed in 1991. It establishes the Mine Development Assessment Process.

Key Provisions:

- o Subject projects are termed "reviewable mine developments" and are required to obtain "mine development certificates" (in place of the former "approval-in-principle").
- o "Reviewable mine developments" automatically include coal and hardrock mineral mines, and may also include other types of mines, designated on a discretionary basis by the Chief Inspector of Mines, where potential impact warrant thorough review (e.g. placer, sand and gravel or quarrying operations).
- o Both minesite facilities and dedicated off-site infrastructure are subject to impact assessment, with an acceptable environmental management plan required in all cases.
- o The Minister of Energy, Mines and Petroleum Resources and the Minister of Environment share jointly in the key decisions required under the Act, and they may appoint independent assessment panels to conduct inquiries into applications.
- o Provision is made for joint reviews with the federal government and other jurisdictions.
- o Provision is made for public consultation and mediation activities.

MAJOR PROJECTS

- * Sixteen acid mine drainage research projects were conducted during 1990 and a 1.5 million dollar program is proposed for 1991
- * Hours of work study with U.S. Bureau of Mines and Simon Fraser University underway for proposed 12 hour shifts at the Westmin Mine, Vancouver Island
- * Mine Accident Database completed and shared with other Chief Inspectors
- * Ceramic filter evaluation on underground equipment is ongoing and after a thorough sampling project, a T.L.V. for Respirable Combustible Dusts was established at 1.5 parts/million
- * Acid Mine Drainage Technical Guide completed and receiving worldwide recognition
- * Underwater Tailings Disposal Manual completed
- * Open Pit Waste Dumps in B.C. are the largest man-made structures on the face of the earth, some are billion-ton rock drains in excess of 400 m in height. A Tripartite Research Committee was formed and has the following five projects underway:

- Interim Design Investigation Manual
- Mine Dump Operational Manual
- Failure Runout Characteristics
- Movement Monitoring Manual
- Failure Data Base

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MANITOBA

Director, Mines Inspection Branch - R.H. Glassford, P.Eng.

Department of Labour
Workplace Safety and Support Services Division
Mines Inspection Branch

Mines Inspection staff enforce the Workplace Safety and Health Act and Regulations under this Act, specifically the Manitoba Regulation 62/87, being the Regulation respecting the Operation of Mines.

MANDATE

Mine Inspection staff conduct routine and special inspections on safety and health matters at all mining operations in Manitoba, identify visible, suspected and possible hazards or conditions and provide the highest possible standards of safety and health for workers by ensuring compliance with legislation and with sound engineering practices.

SIZE OF ORGANIZATION/STRUCTURE

One District Mining Engineer; 4 mines inspectors; 1 mines inspector - electrical; 1 mine rescue instructor; environmental engineer; 2 quarry inspectors, 3 support staff.

The Mines Inspection Branch is organized into three regions: Winnipeg, Thompson and Flin Flon, with inspectors residing in Winnipeg, Thompson, Flin Flon and Snow Lake. A District Mining Engineer, resident at Thompson has the responsibility of overseeing the inspectors in all northern mining areas, and evaluating technical data governing the operation of mines at these locations.

In the Winnipeg area, the Director carries out these functions in addition to the overall direction of the branch. The Mines Inspection Branch is organized as a self-contained unit due to specific expertise requirements. It reports directly to the Executive Director of the Division.

SIZE & SCOPE OF INDUSTRY

The mining industry in Manitoba employs about 4,500 workers at producing mines. There are 13 active underground mines, two open pit mines and two integrated smelting and refinery operations. A further 1,500 persons are employed annually by: developing mines and mining contractors; mine construction contractors; contract diamond drilling; quarries, sand and gravel and peat moss operations.

MAJOR INITIATIVES

The Mines Inspection Branch undertakes its mandate and programs in two basic aspects:

1. A proactive function of routine inspections, prioritized inspection, audits, consultation and engineering predevelopment, reviews; and
2. A reactive function which includes complaints, work refusals, unusual occurrences, incident and accident investigation.

MAJOR CHANGES IN APPROACH/LEGISLATION

A tripartite committee has been struck to review and update the Regulation Governing the Operation of Mines. This updating review will be concluded in 1991.

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NEWFOUNDLAND/LABRADOR

Chief Inspector - R.R. March (pro tem)

MANDATE

The Mines Inspection Group administers the Mines (Safety of Workmen) Regulations and the general aspects of the Occupational Health and Safety Regulations under the authority of the Occupational Health and Safety Act by inspecting the mining workplace. The purpose is to protect worker health and safety in mines and mineral related facilities* of the province.

*Mineral related facilities include tunnelling projects, mineral processing plants and sand and gravel pits.

SIZE OF ORGANIZATION AND STRUCTURE

Mines Inspection Engineer	1	
Mines Inspection Technicians	2	
Mine Rescue Training Officer	1	(Education Branch)
Hygiene Technician (Labrador)	2	(Hygiene Section)
Support	2	

SIZE AND SCOPE OF INDUSTRY

Underground Mines	1
Open Pit & Major Quarries	6

There are approximately 3,600 workers employed in the industry.

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SAFETY RECORD FREQUENCY RATE

1990	5.8 L.T.A. per 200,000 manhours
1989	5.2 L.T.A. per 200,000 manhours
1988	4.6 L.T.A. per 200,000 manhours
1987	4.0 L.T.A. per 200,000 manhours
1986	3.7 L.T.A. per 200,000 manhours

Over the past five years 4.6 L.T.A. per 200,000 manhours

FATALITY RATE

While the rate over the past ten years has been .018 per 200,000 manhours, the rate for 1990 increased to 0.05 per 200,000 manhours when two fatal accidents occurred in the industry.

SPECIAL PROJECTS

There are currently no special projects underway apart from revision of the Mines (Safety of Workmen) Regulations.

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NEW BRUNSWICK

**Director, Inspection Services - R.A. Blanchard, P.Eng.
Occupational Health and Safety Commission**

MANDATE

The New Brunswick Occupational Health and Safety Commission has jurisdiction over all provincially regulated companies. The mandate of the Commission is to reduce, with the involvement and participation of workers and employers, the incidence of accidents and illnesses to workers in the workplace and to improve health and safety conditions in the workplace environment by means of research, education, promotion and enforcement of legislative authority.

SIZE OF ORGANIZATION & STRUCTURE

The Director of Inspection Services is Raymond Blanchard, P.Eng. The position has a dual function: one as Director of Compliance Officers and Managers for General Safety, Mine Safety and Forest Safety; the other as Chief Inspector of Mine Safety.

The Occupational Health and Safety Commission has 50 employees divided into five units which encompass Policy and Planning, Administration, Education and Communication, Industrial Hygiene and Inspection Services. The Inspection Services unit has 22 employees assigned to it, 5 of which are Mine Safety Officers.

SIZE AND SCOPE OF INDUSTRY

New Brunswick has approximately 300,000 workers, of which approximately 5,000 work directly for mining companies.

MAJOR CHANGES IN LEGISLATION

The New Brunswick Occupational Health and Safety Commission, in consultation with industry and labour, is completing a major revision of the Occupational Health and Safety Regulations including Mine Safety Regulations.

The new Regulations will be more logically laid out, more easily understood and will more clearly define who is responsible for specific obligations. The initial parts came into effect in June 1989. It is anticipated that the other parts of the Regulations will come into effect by the fall of 1991 and beyond.

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NORTHWEST TERRITORIES

Director & Chief Inspector - W.O.J. Skelly
Mine Safety Division
Department of Safety and Public Services
Government of the Northwest Territories

SIZE AND STRUCTURE OF DEPARTMENT

Mine Safety Division is a part of the Department of Safety & Public Services. The Director/Chief Inspector reports to the Deputy Minister.

Mine Safety Division consists of nine people: Director/Chief Inspector, Mine Training Coordinator, Mechanical/Electrical Engineer, Environmental Engineer, Mine Rescue Superintendent, three Inspectors and a Secretary.

Mine Safety Division inspections include all mines, sand and gravel pits and rock quarries.

Mine Safety Division Inspectors are Deputy Explosive Inspectors and enforce the Explosive Act and Explosive Regulations.

SIZE AND SCOPE OF INDUSTRY

The Northwest Territories had seven operating mines in 1990. There are six underground operating mines and one open pit mine.

There was approximately 2,100 people employed directly by the mining industry in 1990.

CHANGES/INITIATIVES - LEGISLATION

The Department of Safety and Public Services, Mine Safety Division undertook a complete revision and rewriting of the Mining Safety Act and the Mining Safety Regulations in 1990. The revised Act and Regulations will be sent to labour and industry for consultation and review. It is hoped that the new Act will be introduced in the Legislature in the 1991 fall sitting.

NOVA SCOTIA

Director, Mine Safety Section - C.J. White, P.Eng.
Nova Scotia Department of Labour

MANDATE

The Mine Safety Division, Nova Scotia Department of Labour is responsible for monitoring the mining industry for compliance with the Occupational Health and Safety Act and related regulations. The Cape Breton Development Corporation falls under the jurisdiction of Labour Canada. The section also provides training in emergency first aid and mine rescue and on behalf of the Board of Examiners, administers the certification program for coal mines.

SIZE AND SCOPE OF INDUSTRY

The mining industry which includes pits, quarries, underground coal and hardrock mines, falls under the legislative requirements of the Coal Mines Regulation and Metalliferous Mines and Quarries Regulations.

SIZE OF ORGANIZATION AND STRUCTURE

Regional offices are located in Glace Bay, Stellarton and Springhill; head office in Halifax.

The Mine Safety Section has six safety officers, a supervisor, director and two support staff.

The Section maintains a fully equipped mine rescue station in the Stellarton office.

CHANGES/INITIATIVES LEGISLATION

New blasting regulations came into effect March 1, 1991.

Major changes included:

- increased responsibility and authority to the blaster
- a code of practice is now required when drilling closer than six meters to a loaded hole
- a completely revised certification program which affects approximately 500 people qualified in the use of explosives
- a new "restricted use" class of blaster is created for specialists' field
- refresher training required every three years.

The Metalliferous Mines and Quarries Act and the Coal Mines Regulation Act are being revised and will be ready for review by industry and labour in 1991.

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ONTARIO

Director - P.V. Kivisto, P.Eng.
Mining Health and Safety Branch

MANDATE

The objective of the Mining Health and Safety Branch is to have workers and management in the Ontario mining industry achieve a safe and healthful occupational environment. Through active emphasis on the Internal Responsibility System (IRS), the branch encourages workplace parties to identify and control hazards in the workplace in a cooperative manner.

The branch administers the Occupational Health and Safety Act, R.S.O. 1980, C.321, Regulation 694 as amended by O.Reg. 258/87 and the Regulations for Mines and Mining Plants, the designated substances regulations, and Regulation 633/86 for oil, gas and related industries offshore.

The branch's activities apply to 194 underground mines; 60 open pit mines; 6,613 sand and gravel pits; 485 quarries; 49 metallurgical and ore processing plants and laboratories; and 49 clay, shale and peat workings.

In 1990/91 the branch:

Carried out 2,098 inspections, resulting in 2,505 orders, 95 of which were stop work orders.

Investigated all fatalities and published reports of the investigations. During 1990/91, 9 fatalities were investigated, 7 of which were under the jurisdiction of the mining regulations.

Investigated 16 work refusals. Also investigated 229 complaints of unsafe or unhealthful conditions.

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Research, analysed and prepared background information for the Mining Legislative Review Committee, covering the following areas:

- electricity
- mine shaft hoisting and inspections
- loading pockets
- diesel exhaust measurements
- arsenic in underground mines
- radon in non-uranium mines
- misfired explosives
- worker inspectors
- fall-on protective structures
- hours of work
- ground control
- first aid
- lunchrooms and washrooms

Conducted 845 tests of ropes for wire ductility and rope strength at the Wire Rope Testing Laboratory.

Conducted working environment surveys to determine exposure to dust, gases, arsenopyrite, diesel emissions and fumes.

Conducted pre-development review of new mining process technology, the use of new methods of construction and equipment installation, major alterations of mining techniques and technology, and major additions and alterations for compliance with the Act and Regulations.

Provided mine rescue training, with 995 participants involved in the mine rescue training program and 31 teams of seven competing in eight district mine rescue competitions. Mine rescue officers conducted 6843 person-days of training. This total does not include extra district and provincial competition training or emergency assistance. Mine rescue teams responded to 63 emergencies.

Through a joint industry/labour/ministry endeavour, conducted 5 workshops to promote the Internal Responsibility System. The workshops were held in

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locations throughout northern and southern Ontario. One hundred and five management and labour representatives from the mining industry participated in these workshops.

Organized cooperative research programs. The Ministry of Labour, through the Mining Health and Safety Branch, has entered into a number of cooperative research programs with the federal Department of Energy, Mines and Resc (Canada Centre for Mineral and Energy Technology) and the United Bureau of Mines. These initiatives include programs and studies on wire rope and hoisting technology, the effects of extended hours of work, and rock mechanics and ground control.

Published and widely distributed quarterly reports covering industry performance in such areas as incidents, accidents, fatalities, prosecutions and hazard notices.

Conducted mine audits to evaluate the industry's ground control program and identify needed improvements and audits of the integrity of surface storage vessels.

Maintained a computerized database on unusual occurrences such as falls of ground and rockbursts, in order to identify trends, causes and preventive measures.

Participated in the continued development of a National Mines Accident Database.

Chaired the CSA Steering Committee on Mining Standards and participated in several standards subcommittees.

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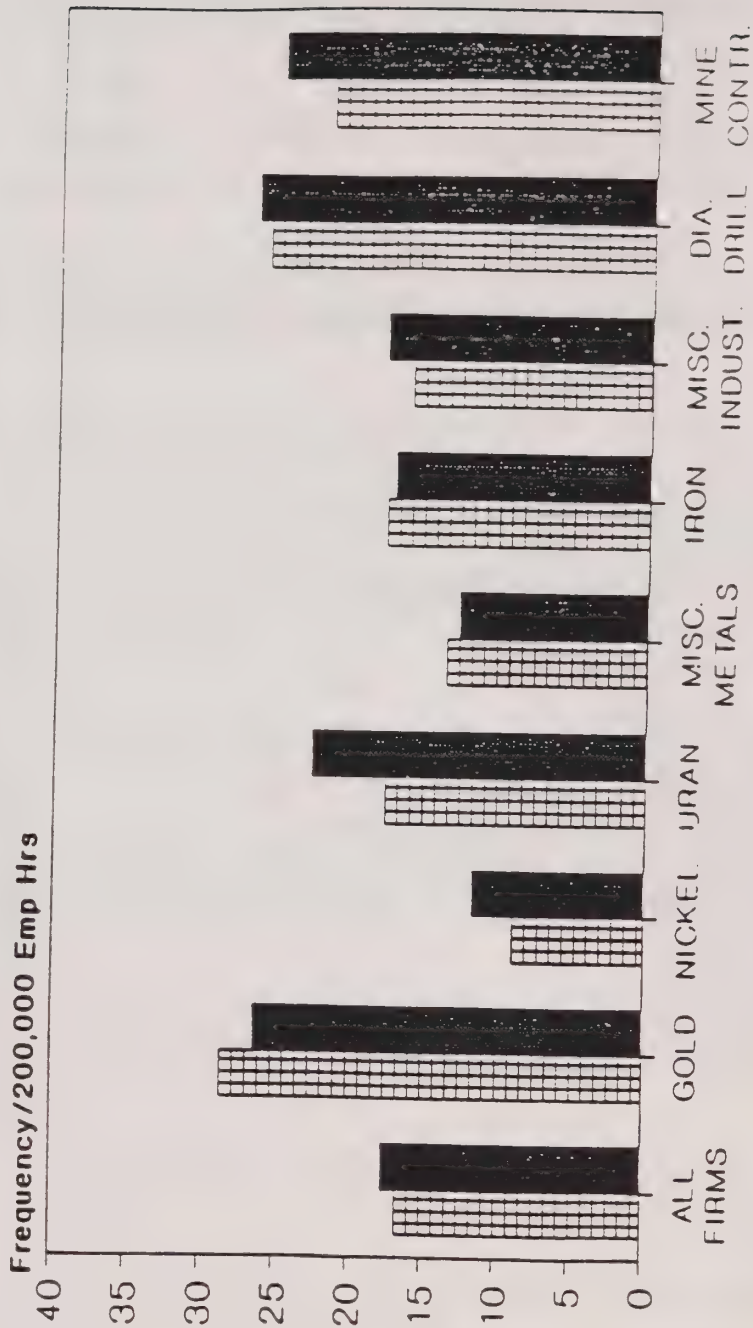
Mining Health and Safety Branch - Inspection and Fatality Data

	<u>1990/91</u>	<u>1989/90</u>
Mine Rescue Stations	8	7
Mine Rescue Substations	45	46
Miners Under Training in Mine Rescue	995	700
Wire Rope Tests	834	942
Revenue from Wire Rope Tests	\$260,934	\$238,874
Fatalities Investigated	9	11
Refusals to Work Investigated	16	20
Unusual Occurrences Reported	262	271
Hours Spent on Complaints Investigations	2406	2062
Pre-development Review	7715	8284
Inspection Reports	3632	2782
Orders Issued	2505	3825
Stop work Orders	95	89
Prosecution Cases	10	14
Convictions	10	11
Fines	\$126,000	\$100,000

Mines
Accident
Prevention
Association
Ontario

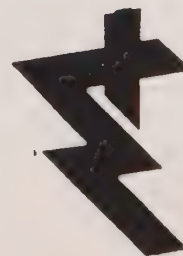
P.O. Box 1468
147 McIntyre St. W.
North Bay, Ontario
P1B 8K6
(705) 472-4140
Fax: (705) 472-5800

TOTAL MEDICAL INJURY FREQUENCY ONTARIO MINING INDUSTRY



1989 YEAR END DEC. 1990 FINAL

SOURCE : MAPAO REPORT MS0101.1



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QUEBEC

C.S.S.T. (Quebec Workers' Compensation Board) has nothing special to report at this time.

Please see Page 45 for a report of the activities of A.P.S.M. (Joint Association for Occupational Health and Safety in the Mining Sector).

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SASKATCHEWAN

Mine Safety Unit - B. Allan, P.Eng., Chief Inspector

SIZE OF ORGANIZATION AND STRUCTURE

The Mine Safety Unit consists of four people, including the Chief Inspector. There are two engineers and two tradespeople. The Chief Inspector reports to the Executive Director of the Occupational Health and Safety Branch of the Department of Human Resources, Labour and Employment. The Unit covers 30 mine sites and approximately 10 prospects.

ACTIVITIES

1. Routine work is divided into inspections, monitoring and training. When inspections and accident analysis show that the corporate safety program is productive, then that mine is audited more than inspected. Where improvement is needed, the committee and worker training is initiated by the Unit to encourage an effective safety and training program at the mine site.
2. New mines are given vigorous attention to ensure that each mine starts off with an effective safety program.
3. A Unit Procedure Manual is being developed.
4. The Mines Regulations 1991 are complete and ready for legislative approval.

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PROJECTS

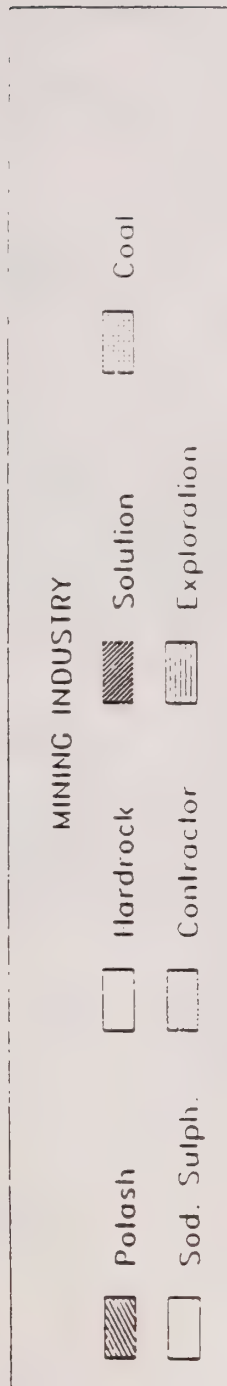
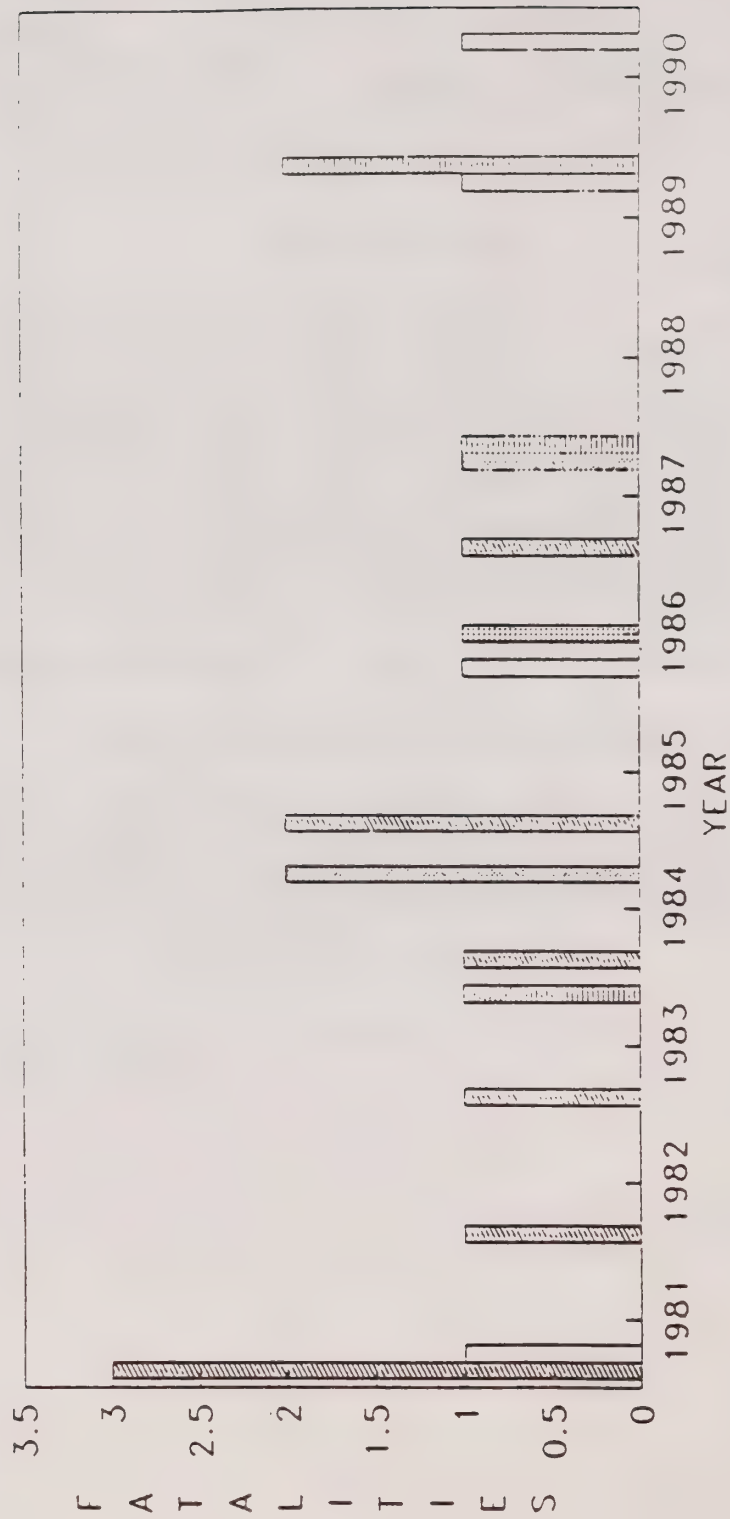
1. The Mines Unit and Radiation Unit are co-operating to develop guidelines for control in high grade uranium mines and also those that have a high inflow potential for radon contained in water. Underground mine layouts are examined to ensure that ventilation, egress and water control are adequately handled in the planning stage. To handle the exploration and development stages, the new Mines Regulations require that exploratory drill holes are adequately grouted to control any future inflow into workings.
2. The development of Codes of Practice will be given attention in 1991/92.

INDUSTRY ACCIDENT FREQUENCY AND SEVERITY

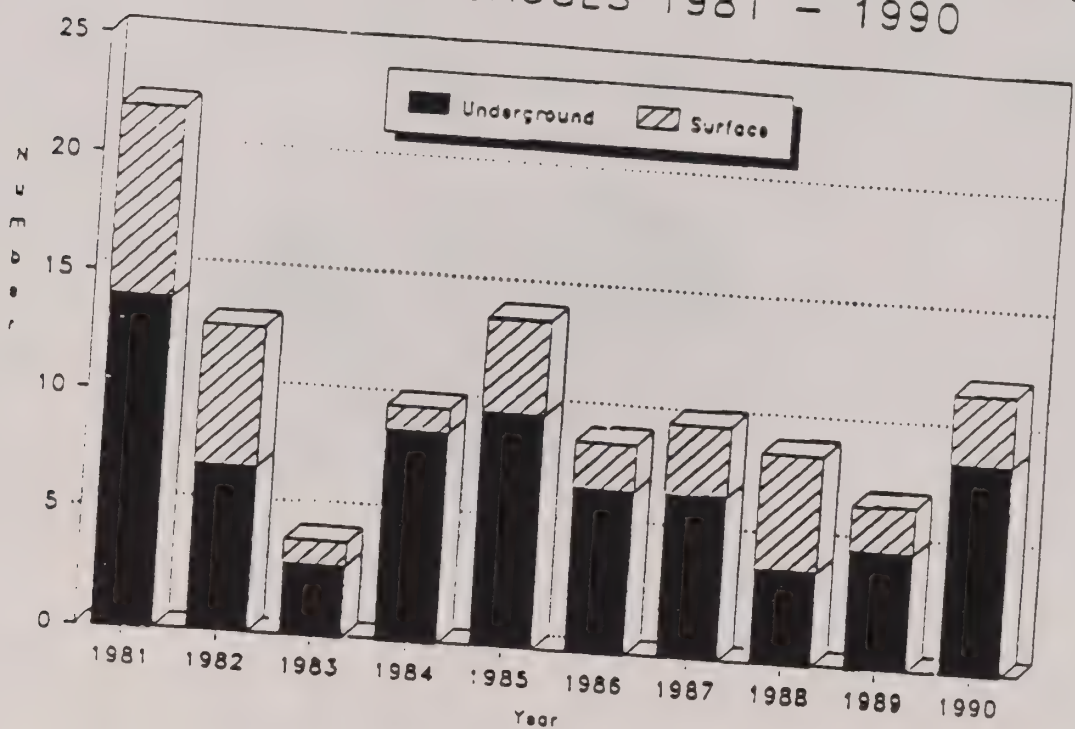
The long term improvement continued in 1990 due to a number of factors. These included a stable work force, improved corporate training and safety programs and regular inspections. There was one fatality.

SASKATCHEWAN MINING FATALITIES

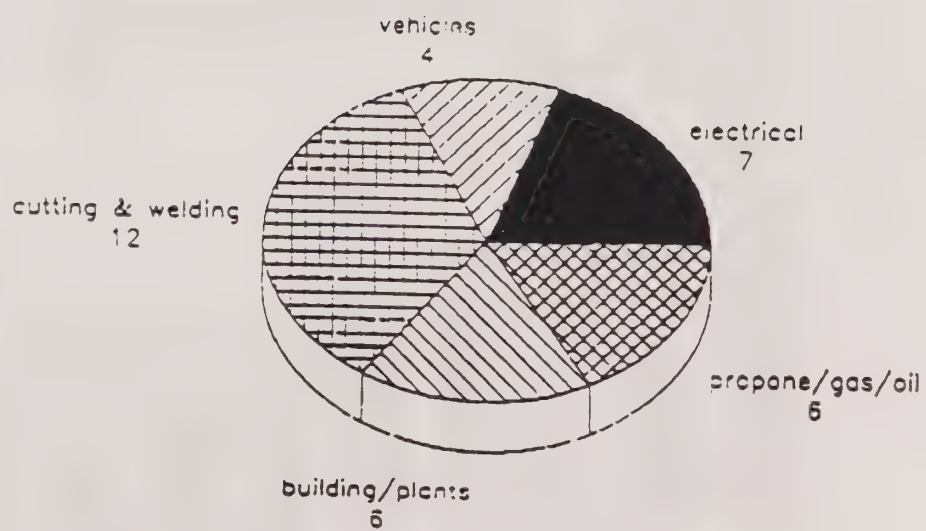
1981 - 1990



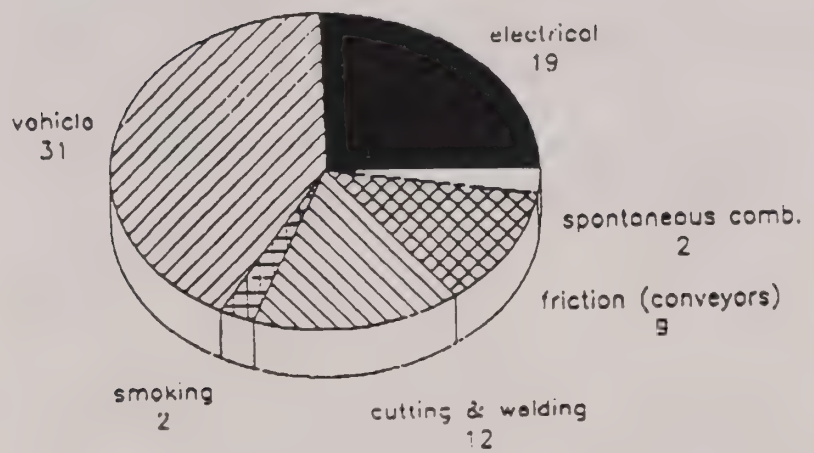
FREQUENCY OF FIRES IN SASKATCHEWAN MINES AND THEIR CAUSES 1981 - 1990



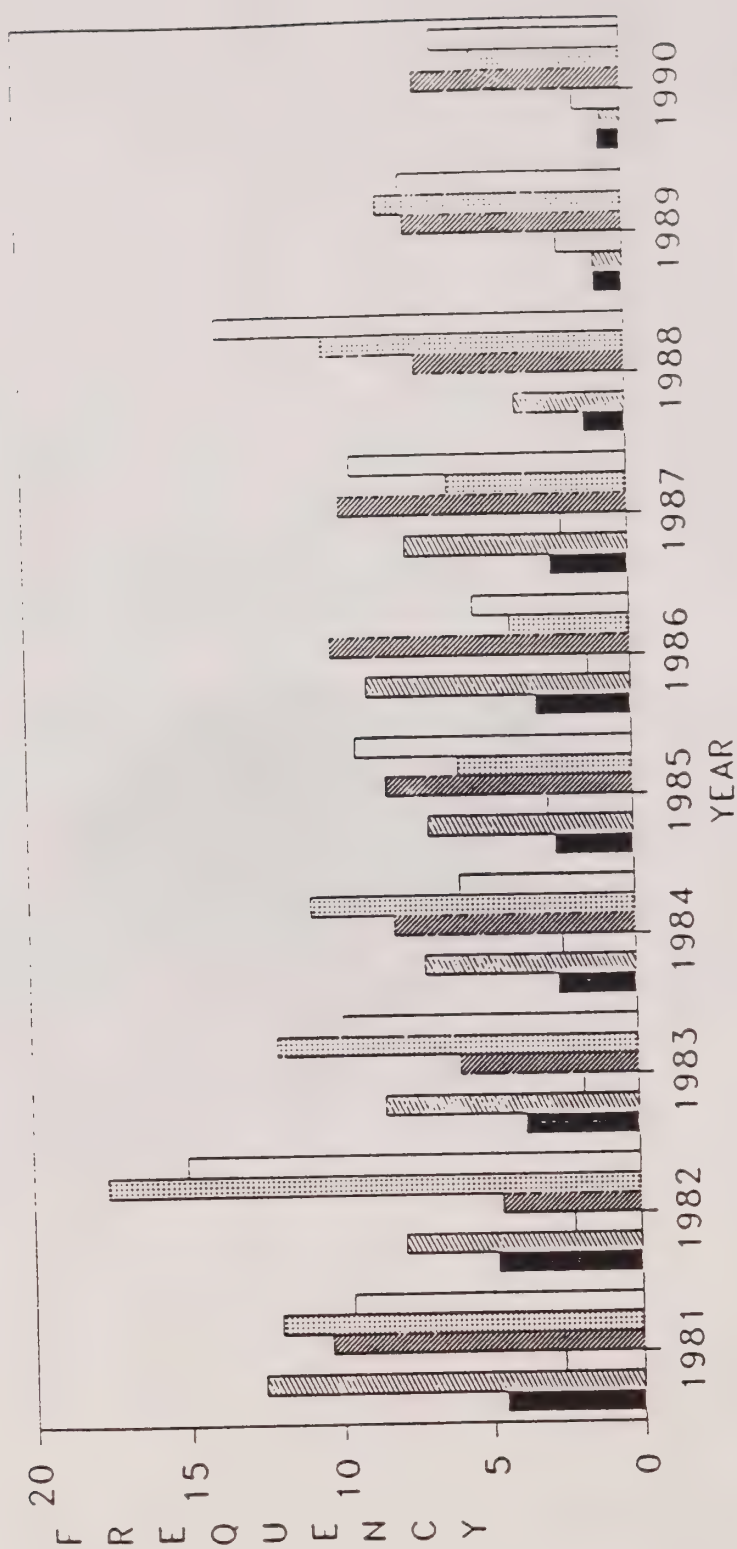
SURFACE



UNDERGROUND



SASKATCHEWAN MINING INDUSTRY LOST TIME ACCIDENT FREQUENCY 1981 - 1990



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YUKON TERRITORY

Chief Inspector of Mines - Naresh Prasad, P.Eng.
Department of Justice
Occupational Health & Safety

SIZE AND STRUCTURE OF ORGANIZATION

The Mine Safety Unit is a part of the Occupational Health & Safety Branch and the Chief Inspector of Mines reports to the Manager, Occupational Health & Safety.

The Mine Safety Unit has been assigned four persons: Chief Inspector of Mines, Mine Safety Inspector, Mine Rescue Superintendent and a Secretary.

Due to the cyclical nature of the mining industry, it is expected that employees of the Mine Safety Unit may conduct safety inspections on other than mining property if time is permitted.

SIZE AND SCOPE OF INDUSTRY

The mining industry is the most important sector in the Yukon's economy. During 1990, it had two producing mines with more than 100 employees. It also had two other underground mines, one of which mined gold bearing frozen gravel. Yukon also has approximately 195 placer gold mines employing approximately 700 on a seasonal basis. The major minerals produced were zinc, lead, gold and silver. The value of mineral production for the year 1990 was 509 million dollars.

The mining industry employs about 1,600 workers at producing and developing mines. During 1990 there was one fatality and the accident frequency was 5.0.

ENERGY MINES AND RESOURCES

Explosives Division - Chief Inspector of Explosives - R. Shaw

Operates under the Explosives Act and Regulations

MANDATE

To administer the Explosives Act and Regulations in order to achieve public and worker safety in explosives manufacture and storage and to help achieve safety in transport and use.

SIZE OR ORGANIZATION/STRUCTURE

The Explosives Division has 28 full time employees. At Headquarters in Ottawa are the Director - Chief Inspector of Explosives, the Deputy Director, four specialist inspectors an explosives technologist, and 7 support staff. There are five regional offices located in Halifax, Quebec City, Ottawa, Calgary and Vancouver. Each regional office has one or two inspectors and a secretary.

SIZE AND SCOPE OF INDUSTRY

Explosives, propellants, pyrotechnics and explosive or pyrotechnic articles are all controlled.

Factories	about 100
Vendors' Magazine Sites	about 180
Users' Magazine Sites	about 2000
Annual number of Import Permits	about 800
Annual Value of Goods:	about \$350,000,000

MAJOR INITIATIVES

None to report as recently accomplished.

OBJECTIVE OF THE DIVISION

The Explosives Division has as its main objective the control of explosives manufacture, storage and transportation in the interest of public safety and within the framework of the Explosives Act and Regulations. Responsibility for transport is passed to Transport Canada under the Transportation of Dangerous Goods Act, with the Explosives Division retaining an advisory role.

Exempt from Division control are:

- a) Use of explosives, which is provincially controlled,
- b) Explosives under the control of the Department of National Defence.

Means of Control

Control of explosives manufacture and storage is achieved by a system of licensing and inspections.

A licence issued by the Division is required by each explosives factory and each operating or storage building within the factory. This applies to industrial explosives, fireworks, ammunition, military or industrial pyrotechnics and any explosive devices. Similarly, no explosives can be imported into Canada without a permit. Further, the particular explosives to be made or imported must first be authorized individually, even though, in the case of domestic manufacture, the factory where they are to be made already has a licence. Authorization is commonly given by the Chief Inspector of Explosives only after samples have been examined by the Canadian Explosives Research Laboratory, which is itself part of EMR.

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Licences are also required for magazines, whether or not at a factory location and permits are required for trucks carrying explosives in excess of certain quantities. The issuing of truck permits will soon be taken over by the Transportation of Dangerous Goods Directorate.

Licences are granted after applications are received indicating that the proposed buildings, trucks or operations meet the requirements of safety. Inspections ensure the maintenance of those standards.

All members of the R.C.M. Police force are deputy inspectors of explosives. The R.C.M.P. have helped draw up magazine standards and they inspect user magazines once a year to ensure compliance with standards and retain familiarity with the locations of explosives stores.

Beyond licensing and inspection, which are the formal and most important parts of control, the Division carries out an extensive educational program, both informally through discussions with industry and more formally through:

- a) Publications about standards, safety and accidents
- b) Participation in seminars and training programs of which the Division conducts about 70 a year
- c) Fireworks Supervisors' Course
- d) Films and slide presentations on safety with explosives
- e) Committee activities directed to the betterment of national and international regulations

With so much said about licensing, authorization and inspection, it is worth noting that education and discussion and persuasion are usually effective in correcting any deficiencies which are found and that prosecution under the Act is rarely necessary.

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Liaison

The Division, in order to function effectively, recruits persons knowledgeable about explosives and therefore is in a position to advise other government agencies about problems related to explosives. The Division is recognized as the authority on explosives and pyrotechnics by the Departments of Transport, Labour, Consumer and Corporate Affairs, Post Office, Justice, R.C.M. Police and the Canadian Transport Commission. In turn, the Division maintains contact with industry and the military in Canada and other countries so as to be able to draw on the expertise of others as required.

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LABOUR CANADA

Senior Mine Safety Engineer - T.E. Smales

Office located in Sydney, Nova Scotia

MANDATE

The Sydney Office of Labour Canada continues to be the regulatory body for safety and health in the coal mines of the Cape Breton Development Corporation.

INTRODUCTION

There are three working underground coal mines which employ about 3,000 persons and one non-working mine in which two tunnels have been driven 3 km out for initial development.

The Corporation has a coal preparation plant located on the outskirts of Sydney, a ship loading pier in the harbour of the city and a railway system.

There are severe economic pressures on the coal mining industry which require coal production at very low cost. Both Prince and Phalen Mines are working longwall retreat mining and Lingan Mine is now developing its first retreat face with a view to going all retreat in the future.

All of the mines are accessed by in seam drifts and are under the ocean. These two factors produce problems peculiar to this type of mining even though geological conditions are good.

ACCIDENT RATES

The frequency and severity of accidents continued to reduce during the year 1990 and this is a pleasing feature as the trend has continued for the past eight years. Many of the accidents are investigated and reviewed by the Safety and Health Committees. Recommendations are made and persons who will take necessary action are identified.

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COAL MINING SAFETY COMMISSION

Current legislation did not allow for approval or exemption under the act by the Chief Inspector. The Canada Labour Code established a Commission with powers of approval and exemption. In addition, the Commission have the legislative authority to "Designate" a person to give approvals on its behalf.

The Commission meets at irregular intervals, considers exemptions and reviews approvals issued by the Designated Person.

The system works well but does limit the ability to issue exemptions quickly.

The Designated Person is currently the Senior Mine Safety Engineer.

HAZARDOUS OCCURRENCES

The major hazardous occurrences reported during the year were:

"Heat or smouldering due to conveyor idlers and

Electrical flashes".

A Task Force comprising union, management and Labour Canada representatives meets on a quarterly basis to review occurrences which involve heat, potential fires or explosions. the Task Force is suitably supported by actions of the unions and CBDC.

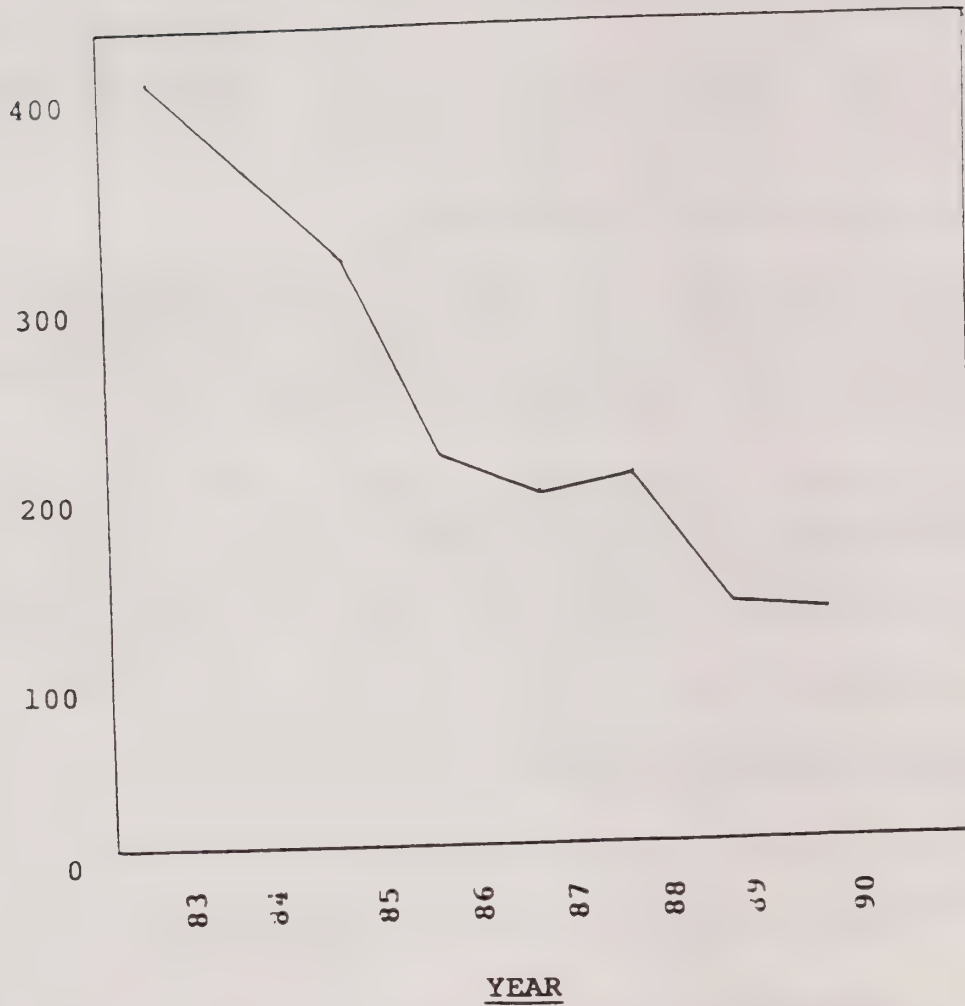
There was one incident of frictional ignition when methane was ignited by the picks on a roadheading machine striking strata containing a high percentage of silica. All development personnel have been informed of the necessary care that should be taken under those conditions.

STAFFING

The office is staffed by one mining engineer, one electrical engineer, an environmental engineer and two safety officers.

ACCIDENT FREQUENCY - CBDC

FIG. 1



$$\text{FREQUENCY} = \frac{\text{No. of Lost Time Accidents}}{\text{Total No. of Hours Worked}} \times 10^6$$

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A.P.S.M. SUMMARY OF ACTIVITIES

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Director General - A.P.S.M. - Pierre Lapointe, P.Eng.

The Association paritaire pour la sante et securite du travail du secteur minier (joint association for occupational health and safety in the mining sector) - (APSM) is a sector-based association whose members include representatives of employer and union groups in the Quebec mining sector. The sector covered includes metal, asbestos, iron-ore and industrial mineral mines, mining entrepreneurs, diamond drillers and prospectors. Approximately 15,000 men and women work in this sector.

The APSM is responsible for providing employers and workers in the mining sector with training, information, research and consulting services in the area of occupational health and safety. Its prime objective is to involve all of these individuals by encouraging the cooperation of labour and management in accident prevention.

This summary provides an overview of the activities carried out in 1990 which enabled our association to strengthen its role with respect to its terms of reference. Our training, information and consulting services have expanded and the demand for these services is ongoing.

In 1990, the area of joint training was dominated by the joint inspection course which was conducted 12 times. This course is a real success and in great demand; it is scheduled to be conducted every week for the next three months. The basic health and safety and the accident investigation courses were requested and conducted six times. The latter is currently being revised because, according to users, the method proposed must be made simpler and should be easy to adapt to the particular requirements of each establishment.

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With respect to information activities, the APSM worked closely with the mining accident investigation committee. It also had to resume the review of the proposed regulation on health and safety in mines. The APSM, which had obtained labour-management consensus on all of the provisions of this proposal, expressed its frustration with the administrative delays affecting this regulation. It is even unlikely that this regulation will take effect in 1991. In the area of information, the APSM also continued its efforts to collect and process statistics on accidents. The accident statistics for 1990 were the best since 1987. There has been a regular decrease in the frequency of accidents and their severity seems to have levelled off. According to reports, 18.7% of 12,950 workers received compensation from the CSST (9.7%), or were temporarily assigned to other duties (9%). It is estimated that accidents for which compensation was paid in 1990 will result in an average of 41.2 days away from work. Unfortunately seven workers were victims of fatal accidents.

Two advisers were hired during the year. Antoine Chevarie and Francois Gay have the difficult task of encouraging joint labour-management activities in the workplace. Their valuable experience has already improved APSM's training and consulting services. Encouraging results were achieved in 1990 because of the perseverance of APSM's other permanent employees, administrators and clientele.

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THE NATIONAL MINE ACCIDENT DATA BASE (NMADB)

STATUS REPORT

APRIL 1991

BACKGROUND

As indicated in the last status report presented at the May 1990 meeting of the Association of Chief Inspectors of Mines, a prototype National Mine Accident Data Base (NMADB) is in place. Four jurisdictions are now participating in the national data base since N.W.T. has officially joined the program in late fall of 1990. The data base is representative of accidents which affected workers within approximately two thirds of the mining workforce of Canada over the last four years.

The NMADB now contains more than 23,000 records descriptive of mining accidents which occurred over the five-year period from 1986 to 1990. This data allows production of statistical analysis of accidents from a general to a more specific level of detail.

The creation of the NMADB resulted from a task force set up by the Association of Chief Inspectors of Mines in the early 1980s. This project was born from the desire of this Association to see descriptive accident data captured at the national level. Energy, Mines and Resources Canada has agreed to act as the project coordinator with the cooperation of Canadian mining jurisdictions.

RECENT DEVELOPMENTS

1. Data for 1990 from Northwest Territories, British Columbia, Ontario and Quebec were received and converted to the NMADB. In the case of Ontario, previous year's data have also been updated.

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2. A conversion module has been developed to convert data captured with MINACC to the NMADB. This was required in order to incorporate N.W.T. 1990 data. Also, other changes to NMADB applications were made to reflect the addition of a new participating jurisdiction.
3. The newly converted data is in the process of being verified and corrections of coding as well as other record adjustments will have to be made shortly, in cooperation with the jurisdictional authority concerned and other members of the NMADB Working Group.
4. NMADB system documentation (conversion and programming) was updated and completed. Also, the preparation of a user's guide was initiated earlier this year and is now nearing completion.
5. In terms of bilingualization of the NMADB, the menu system was translated and French expressions are in the process of being inserted into the system.
6. The new MAPAO coding structure was examined and its impact on the NMADB as a Canadian common denominator was assessed in a preliminary manner. There remain a number of technical questions which will have to be addressed by the NMADB Working Group.
7. The NMADB Working Group held its second meeting in Victoria, B.C. in October 1990. The meeting was attended by representatives from the Chief Inspectors of Mines of N.W.T. and B.C. and the Mines Accident Prevention Association of Ontario. The minutes of the working group meeting as well as the action plan agreed upon at the meeting were sent to Chief Inspectors.

The first meeting of the Working Group had taken place at EMR in Ottawa on December 12, 1989. The idea of creating a working group on the NMADB was discussed and agreed upon at the August 1989 meeting of the Association of Chief Inspectors. The purpose of the NMADB Working Group is to bring cooperative solutions to a number of technical issues (i.e. database structure and fields coding) regarding the development of the NMADB as a pan-Canadian mine accident data base.

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8. A number of analyses were prepared for presentation to Chief Inspectors at their meeting of April 27 and 28, 1991, and their subsequent publication in the Association's 1990 Annual Report. Analyses were prepared for a small number of private requests for information.

CURRENT STATUS

A - STATISTICAL CONTENT

The NMADB now contains 23,631 records of occurrences which took place in the four participating jurisdictions: over the 1986-1990 period in British Columbia and Ontario, over the 1987-1990 period in Quebec and in 1990 in Northwest Territories.

Of the 23,631 NMADB records, 101 (0.4 percent) are fatalities, 8,339 (35 per cent) are lost time injuries, 14,853 (63 per cent) are medical aid injuries and 338 (1 per cent) are dangerous occurrence incidents.

When considering the 19,465 NMADB records reported by B.C., Ontario and Quebec over a common four-year period starting 1987, one finds that:

- (a) of the 90 records of fatalities coded in the NMADB for that period, Quebec, Ontario and British Columbia account respectively for 26 per cent, 51 per cent and 23 per cent of these reported fatalities. This shows that fatality records of the NMADB are distributed among these three mining jurisdictions in proportions close to their relative share in terms of hours worked in mining. Based on 1988 Census of Mines statistics for person-hours paid in metal and non-metal mines, and sand pits and quarries (the latter excluded for Quebec) the relative shares were 28 per cent for Quebec, 56 per cent for Ontario and 16 per cent for British Columbia;

- (b) in terms of the 7,500 NMADB records of time-loss injuries for the four-year period, they distribute as follows: 70 per cent are from Quebec, 26 per cent from Ontario and 4 per cent from B.C. This uneven distribution is due, in most part, to differences in sampling coverage among the three jurisdictions. In British Columbia, lost time injuries are reported for only four mines at the present time while coverage is in the order of 70 per cent in Ontario and close to 100 per cent in Quebec (excluding sand and gravel quarries);
- (c) regarding medical aid injuries, 99 per cent of these NMADB records are reported by Ontario since only B.C. is also reporting these injuries and for four mines only;
- (d) finally, 100 per cent of NMADB dangerous occurrence records are coded by B.C. since only this jurisdiction reports incidents in this category.

Looking specifically at 1990 data, and taking into account injuries reported by the Northwest Territories, the distribution per jurisdiction of fatal injuries coded in the NMADB is as follows: 31 per cent for Quebec, 42 per cent for Ontario, 21 per cent for British Columbia and 5 per cent for the Northwest Territories. The distribution of hours worked among the four jurisdictions differs slightly, Quebec accounting for 27 per cent, Ontario for 54 per cent, B.C. for 15 per cent and N.W.T. for 4 per cent. Records of time-loss injuries remains unevenly distributed where Quebec and N.W.T. are overrepresented with respectively 67 per cent and 10 per cent of these records, and Ontario and B.C. accounting for only 19 per cent and 4 per cent respectively.

These factors are to be taken into consideration in the interpretation of analyses produced from the database.

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B - WORK IN PROGRESS

1. Standard reports: A number of members of the Working Group have expressed their views on a proposed list of standard reports for the Chief Inspectors. However, further discussion is required in order to achieve a consensus and recommend a documented proposal.
2. New MAPAO coding structure: As mentioned above, a preliminary assessment was made of the impact of MAPAO new coding structure on the NMADB. Among the technical questions which will have to be addressed by the NMADB Working Group, there are (a) the identification of MAPAO minor structural changes (coding) from the major ones (fields), (b) the analysis of the comparability of the data among jurisdictions. This is in order to decide on the best way of converting MAPAO's 1991 data in the NMADB while maintaining the NMADB role as a common denominator for consistent national analyses.
3. Contact with jurisdictions: Maintain close contact with jurisdictions interested in participating in the project (e.g. adopting MINACC).

FUTURE DEVELOPMENTS

Looking ahead, other upcoming developments which are of importance to the successful implementation of the NMADB are:

- (a) to pursue the activities of the working group through formal and informal communications (including meetings);

- (b) to jointly establish a working group plan for future activity, with a view to address a number of issues, among others:
 - (i) look forward to standardize definitions;
 - (ii) look at scenarios for the NMADB to accommodate MAPAO's structural change with a view to maintain maximum national consistency in the coding of mine injuries (i.e. two basic scenarios but each one will have an impact on the NMADB comparability with APSM and MINACC data);
 - (iii) discuss the conversion to the NMADB of MINACC expanded coding under ACTIVITY and TASK fields coding;
 - (iv) communicate up-to-date information on the status of MINACC, and its operationalization in B.C., to members of the working group;
 - (v) initiate analytical work on the statistical and methodological issues related to the incorporation of "population at risk" data into the NMADB;
 - (vi) look at the possibilities of coding a field on the number of days lost.

APPENDIX 1

LOST TIME ACCIDENT

FREQUENCIES

1990

(based on 200,000 hours)

CANADA

LOST TIME ACCIDENT FREQUENCIES - UNDERGROUND

COMPANY NAME	HOURS WORKED	FREQUENCY
Minerals Lac* - Bousquet #1	329,387	35.8
#2	192,743	24.9
Giant (NWT)	689,109	18.0
Dickenson	770,314	4.7
Westrock Ind. Ltd.	50,489	4.0
Hudson Bay - Trout Lake	221,311	12.85
Hudson Bay - Ruttan Mine	847,889	12.97
Blackdome ¹	143,555	26.47
Nerco	722,054	21.8
Teck ¹	62,206	25.72
Minerais Lac*	120,747	8.3
Q.I.T.-Fer & Titane Inc.*	687,172	14.6
Mines Aaurizon - Geant Dormant*	244,365	29.5
Ressources Audrey*	312,315	19.2
Hudson Bay - Flin Flon Mine	177,386	9.01
Minerals Lac* - Terrain Aurifere	100,894	21.8
Cambior Inc.* - Chimo	184,753	6.5
Belmoral* - Ferderber	508,220	5.1
Mines D'Or Lac Bachelor Inc.*	18,632	0
Muscocho - Magino Mine	259,434	4.6
Westmin	1,119,391	11.97
Mines Agnico Eagle Limitee*	458,211	6.1
Muscocho - Magnacon Mine	207,008	8.7
Nanisivik	487,473	8.2
Mine Doyon*	929,454	12.7
Hudson Bay - Namew Lake	220,329	6.35
Cheni	300,488	17.97
Golden Bear	226,722	13.23

* For most of these mines there is no split between underground and surface. The entire operation is included in the statistics.

¹ Closed during 1990

LOST TIME ACCIDENT FREQUENCIES - UNDERGROUND

COMPANY NAME	HOURS WORKED	FREQUENCY
Treminco	105,936	11.4
Les Mines Abcourt Inc. *	15,069	26.5
Renabie Gold Mines Ltd.	393,196	7.1
Les Mines Casa Berardi *	298,955	0.7
Brunswick Mining	1,750,195	8.6
Timminco Metals	443,398	5.0
Hudson Bay - Stall Mine	176,489	11.3
Sullivan	640,744	14.05
Luzenac Inc.	100,578	0
Ressource Miniere Rouyn *	126,102	14.3
Holt - McDermott Mine	442,427	6.8
Canada Talc Ltd.	75,085	0
Aurora Quarrying Ltd.	3,430	0
Minnova - Lac Shortt *	297,184	0.7
Cambior - Lucien C. Beliveau	165,180	2.4
Inco/Thompson - T-1, T-3, Birchtree Man. Division	1,114,758	1.43
Falconbridge Gold Corp.	281,119	2.1
Hudson Bay - Rod Mine	75,075	5.32
Placer Dome Inc. - Detour Lake	660,129	6.1
Les Mines D'Or Kiena Limitee *	401,172	3.0
East West Caribou Mining	168,158	2.4
Placer Dome Inc. - Dome Mine	764,419	1.6
Canamax - Bell Creek	232,453	10.3
Minnova Inc. - Winston Lake	310,753	1.3
Teck Corp. - Division Niobec *	318,815	5.0
Agnico Eagle - Donald J. Laronde *	479,892	4.6
Canamax - Kremzar	178,269	11.2
Sifto Canada Inc.	605,194	6.6

* For most of these mines there is no split between underground and surface. The entire operation is included in the statistics.

LOST TIME ACCIDENT FREQUENCIES - UNDERGROUND

COMPANY NAME	HOURS WORKED	FREQUENCY
Minnova - Opemiska*	442,942	5.9
Giant Yellowknife	834,368	1.9
Golden Patricia Mine	465,517	4.3
Colomac	606,875	2.6
Lac Minerals - Macassa	590,311	2.4
Noranda - Mine Gaspé*	1,057,529	3.4
Polaris	726,231	3.8
Denison Mines Ltd.	2,404,201	4.7
Mattabi Lyon Lake	477,140	4.2
Minnova - Lac Dufault*	388,582	4.6
Teck-Corona - David Bell Mine	467,576	3.8
Placer Dome Inc. - Dona Lake	222,548	5.4
Les Mines Sigma Limitee*	774,353	2.6
Noranda Geco	892,402	1.6
Rio Algom - Quirke	1,271,904	5.0
Eastmaque Gold Mines Ltd.	98,386	4.3
Noranda - Matagami*	586,081	2.7
Cambior Inc. (Mouska)*	112,876	5.3
Corona	125,400	0
Falconbridge Ltd.	4,501,394	2.1
Timmins Nickel Inc.	111,826	14.3
Murray Brook Resources Inc.	72,868	8.2
Tantalum Mining Corp. of Canada	222,252	15.30
Lupin	908,767	3.4
Agnico-Eagle Mines Ltd.	47,825	4.2
Inco - Ontario Division	14,320,420	2.3
Cameco - Key Lake	596,400	1.3
Domtar - Construction	226,933	5.3
Falconbridge - Kidd Div. - Met. Site	3,447,942	1.1
Falconbridge - Kidd Div. - Mine Site	2,124,385	1.5
Rio Algom - Panel	800,375	2.7
Hemlo Gold Mines Inc.	721,729	0.6
The Canadian Salt Co. Ltd.	306,124	0
Amok/Cluff	258,800	0
Placer Dome Inc. - Campbell Mine	961,439	2.5

* For most of these mines there is no split between underground and surface. The entire operation is included in the statistics.

LOST TIME ACCIDENT FREQUENCIES - UNDERGROUND

COMPANY NAME	HOURS WORKED	FREQUENCY
Williams Mine Operating Corp.	1,278,272	0.9
Cigar Lake	100,100	0
Hedman Resources Ltd.	15,914	0
Cameco - Rabbit Lake	293,400	0
Canadian Gypsum Company	134,885	0
Rio Algom - Stanleigh	815,216	3.4
St. Andrew Goldfields	93,435	0
Barrick* - Canflo	243,766	0
Cambior Inc.* (Yvan Vezina)	103,380	0
Heath Steel Mines Ltd.	564,152	0.4
Lac Minerals Ltd. (NB)	4,818	0
Hudson Bay - Callinan Mine	147,588	17.61
Pine Point	19,605	0

* For most of these mines there is no split between underground and surface. The entire operation is included in the statistics.

LOST TIME ACCIDENT FREQUENCIES - SURFACE

COMPANY NAME	HOURS WORKED	FREQUENCY
Lab - Operation Bell	673,620	25.2
Lab - Operation Black Lake	906,616	18.8
Lab - Operation B.C.	733,958	13.4
Q.I.T. - Fer & Titane Inc.	687,172	14.6
Westroc	47,296	0
J.M. Asbestos Inc.	1,006,996	18.5
Algoma Ore	398,046	5.0
Quebec Cartier - Mont Wright	2,528,191	13.2
Sifto Salt	162,600	6.1
Quebec Cartier - Transport	1,334,179	9.0
Holnam West	101,089	13.85
Similco	688,186	13.95
Afton	411,358	7.78
Westroc Industries Limited	4,080	0
Chisel Mine Open Pit	39,946	15.04
Unimin Canada Ltd. - Silica	127,009	3.1
Compagnie Miniere IOC	236,071	4.2
Minnova	185,607	0
Island Copper	1,174,228	5.45
Mines Wabush	810,263	4.2
Quebec Cartier - Bouletage	732,347	4.1
Cassiar	686,533	6.70
Brenda ¹	395,683	3.03
Cominco	657,200	2.1
Sherman Mine ¹	163,289	0
Alcan	4,009,898	4.34
Nickel Plate	361,520	1.11
Unimin Canada Ltd. - Nephton	189,558	3.2
Highland Valley	2,354,949	1.87
Unimin Canada Ltd. - Blue Mountain	168,929	5.9
Bell Copper	636,661	0.94
PCS Cory	237,200	0.8

¹ Closed during 1990

COAL/POTASH

COMPANY NAME	HOURS WORKED	FREQUENCY
Brinco Coal Corporation	135,825	17.67
Prairie Coal:		
Poplar River	313,200	10.8
Costello	106,200	5.6
N.B. Coal Ltd.	401,022	4.5
Greenhills	1,227,088	8.15
Fording	1,789,503	8.05
E.C.C. Boundary Dam	146,900	5.4
Utility	166,700	5.9
Denison-Potacan Potash	959,087	7.7
Westar-Balmer	2,716,392	8.10
Byron Creek	577,775	7.96
N.B. Coal Truckers	54,432	0
Crows Nest	995,440	3.42
Bullmoose	688,094	1.74
E.C.C. Beinfait	167,200	2.4
Potash Company of America	669,393	2.4
Potash Company of America (Sask.)	234,600	0.8
Sussex Security & Dionne	20,922	0
Cameco - Jasper	72,000	2.8
Claude Resources	28,200	0
FM - Asask	28,600	0
FM - Cabri	43,500	9.2
Millar Western	29,100	13.7
Ormiston Mining	35,400	5.6
SM - Chaplin	79,600	2.5
SM - Ingebrigt	64,400	3.1
Cavern Wells	32,500	6.1
Altus	15,500	0

LOST TIME ACCIDENT FREQUENCIES - SURFACE

COMPANY NAME	HOURS WORKED	FREQUENCY
Inco - Thompson - Open Pit	212,288	.94
PCS Lanigan	452,000	0.4
Gibraltar	678,736	3.83
PCS Allan	479,400	0.4
Adams Mine ¹	155,828	8.9
Endako	472,269	0.42
Central Canada Potash	730,500	0.5
Kalium	333,600	0
Equity Silver	368,865	0.54
I.M.C. - K1	700,400	0
Westmin-Premier	354,483	0
Lab - Siege Social	199,080	0
PCS Rocanville	501,200	0.4
I.M.C. - K2	1,014,300	1.2
Inco - Thompson - Mill	2,316,129	0.77
Noranda - Horne - Smelter	2,022,673	11.3
Les Mines Camchib Inc.	169,100	5.9
Cambior Inc. - Pierre Beauchemin	276,871	5.1
Les Mines Selbaie	1,214,153	1.0
Brunswick Smelting	709,011	5.1

¹ Closed during 1990

CONTRACTORS/DIAMOND DRILL

COMPANY NAME	HOURS WORKED	FREQUENCY
Forage St-Lambert Ltee	16,363	12.2
Dominik (1981)	38,360	26.1
Forage Moderne (1985) Inc.	57,794	34.6
Advance Diamond Drilling Ltd. ¹	23,372	42.8
Forages Garant & Freres Inc.	142,035	11.3
Forage B.F.M.	37,937	5.3
Ram Raising Ltd. - Alimak	14,807	0
Longyear Canada Inc.	16,801	23.81
Longyear Canada Inc. (Ont.)	199,853	16.0
Smook Bros.	87,116	4.59
Fraser River Pile & Dredge	43,766	13.71
Ross-Finlay Limitee	272,140	4.4
Heath & Sherwood (1986)	188,430	6.4
Forage A Diamant Phillepon	46,415	12.9
Boart Canada Inc.	124,121	9.7
Mid West Diamond Drilling	217,400	12.88
Mid West Diamond Drilling (Ont.)	79,056	5.1
Thyssen	383,900	6.8
N. Morissette Canada Inc. (PQ)	168,371	13.1
MacIsaac Mining & Tunnelling Co.	63,919	21.91
Tonto	157,200	10.1
N. Morissette Canada Inc. (Ont.)	313,416	11.5
MacIsaac Mining & Tunnelling (PQ)	8,873	0
MacIsaac Mining & Tunnelling (Ont.)	1,424,132	8.0
Wescore Drilling Limited	41,923	9.54
Barron	9,653	0
Bradley, Freres Limitee	204,411	4.9

¹ Closed during 1990

CONTRACTORS/DIAMOND DRILL

COMPANY NAME	HOURS WORKED	FREQUENCY
BLM Mining Services Ltd.	49,406	8.1
Mining Corp. of Canada Ltd.	36,409	0
Bradley Bros. Ltd.	149,791	9.3
Ram Raising Ltd.	26,647	0
Ram Raising Ltd.	7,365	0
Ram Raising Ltd. (Ont.)	164,553	4.9
Catalytic Mtce.	176,800	2.3
Ross-Finlay	77,213	0
Aurora Quarrying (Man.)	235,790	.85
J.S. Redpath Ltd.	759,999	1.6
J.S. Redpath Ltd. (Quebec)	28,662	0
Aurora - Quarrying	9,000	0
J.S. Redpath (NB)	157,100	4.1
J.S. Redpath Limited (Man.)	89,112	8.99
St. Lambert Drilling	41,167	4.9
Aurora Quarrying (Ont.)	174,048	2.3
Canadian Mine Development	149,399	8.4
Canadian Mine Development (Ont.)	66,306	0
Dynatec Mining Ltd.	327,350	3.1
Mindecon Inc.	146,650	0
Manroc Developments Inc.	27,999	0
Alex MacIntyre & Associates Ltd.	109,078	0
Alex MacIntyre & Associates Ltd. (Ont.)	77,380	7.8
Graham Mining Ltd.	163,996	0
Atomic Energy Research	132,556	1.51

APPENDIX 2

NATIONAL MINE ACCIDENT

DATABASE

MINE FATALITIES

IN

CANADA

1978 - 1990

MINE FATALITIES IN CANADA

1978 – 1990

Mineral Policy Sector
Energy, Mines and Resources

March 1991

MINING FATALITIES - NEWFOUNDLAND 1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	1	0	0	1	-	-	-	-	1
1979	1	0	1	0	-	-	-	-	1
1980	0	0	0	0	-	-	-	-	0
1981	1	0	1	0	-	-	-	-	1
1982	0	1	0	1	-	-	-	-	1
1983	0	0	0	0	-	-	-	-	0
1984	1	0	0	1	-	-	-	-	1
1985	1	0	0	1	-	-	-	-	1
1986	0	0	0	0	-	-	-	-	0
1987	0	1	0	1	-	-	-	-	1
1988	1	0	0	1	-	-	-	-	1
1989	1	0	0	1	-	-	-	-	1
1990	2	0	2	0	-	-	-	-	2
TOTAL	9	2	4	7	-	-	-	-	11

NOTE: Excludes deaths by natural causes, and those off a minesite such as motor-vehicle accidents.
- Not reported.

MINING FATALITIES - NOVA SCOTIA 1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	2	0	2	0	0	0	0	-	2
1979	0	0	0	0	0	0	0	-	0
1980	1	1	1	0	1	0	0	-	2
1981	2	0	0	0	0	2	0	-	2
1982	0	0	0	0	0	0	0	-	0
1983	0	0	0	0	0	0	0	-	0
1984	0	0	0	0	0	0	0	-	0
1985	0	0	0	0	0	0	0	-	0
1986	0	0	0	0	0	0	0	-	0
1987	1	0	0	0	0	0	0	-	1
1988	1	0	0	0	0	1	0	-	1
1989	0	0	0	0	0	0	0	-	0
1990	0	0	0	0	0	0	0	-	0
TOTAL	7	1	3	0	1	4	0	-	8

NOTE: These figures do not include the fatalities which occurred at the Cape Breton Development Corporation which comes under federal jurisdiction
- Not reported.

MINING FATALITIES - CAPE BRETON DEVELOPMENT CORPORATION

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	-	-	-	-	-	-	-	-	-
1979	12	0	12	-	0	-	-	0	12
1980	0	0	0	-	0	-	-	0	0
1981	0	0	0	-	0	-	-	0	0
1982	1	0	1	-	0	-	-	0	1
1983	2	0	0	-	2	-	-	0	2
1984	2	0	2(1)	-	0	-	-	0	2
1985	2	0	1	-	1(2)	-	-	0	2
1986	0	0	0	-	0	-	-	0	0
1987	0	0	0	-	0	-	-	0	0
1988	1	0	0	-	1	-	-	0	1
1989	0	0	0	-	0	-	-	0	0
1990	0	0	0	-	0	-	-	0	0
TOTAL	20	0	16	-	4	-	-	0	20

NOTE: (1) Among the two fatalities reported, one was a heart attack ascribed to heavy work.

(2) Security guard attempting to apprehend pilferer was run down.

- Not reported.

MINING FATALITIES - NEW BRUNSWICK 1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	0	0	0	0	0	-	-	0	0
1979	0	0	0	0	0	-	-	0	0
1980	2	0	1	0	1	-	-	0	2
1981	0	1	0	0	1	-	-	0	1
1982	0	1	0	0	1	-	-	0	1
1983	1	0	0	1	0	-	-	0	1
1984	2	0	2	0	0	-	-	0	2
1985	1	1	2	0	0	-	-	0	2
1986	1	1	2	0	0	-	-	0	2
1987	1	0	1	0	0	-	-	0	1
1988	2	0	2	0	0	-	-	0	2
1989	2	0	2	0	0	-	-	0	2
1990	0	0	0	0	0	-	-	0	0
TOTAL	12	4	12	1	3	-	-	0	16

NOTE: Excludes fatalities attributed to heart attacks as well as sand and gravel pits and quarries which are under general safety - Not reported.

MINING FATALITIES - QUÉBEC

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	10	1	2	2	3	4	0	1(1)	11
1979	9	1	3	4	2	1	0	0	10
1980	15	2	11	2	0	2	2(2)	0	17
1981	5	2	1	3	0	1	2	3(1)	7
1982	1	1	2	0	0	0	0	0	2
1983	1	3	2	0	0	0	2	0	4
1984	4	1	4	0	0	1	0	1(1)	5
1985	2	2	2	1	1	0	0	0	4
1986	6	2	6	0	1	1	0	0	8
1987	6	3	7	0	0	2	0	0	9
1988	4	2	0	0	3	3	0	0	6
1989	11	1	6	1	1	4	0	0	12
1990	9	0	4	2	0	3(3)	0	0	9
TOTAL	83	21	50	15	11	22	6	5(1)	104

NOTE: (1) Fatalities which occurred during transportation from residence to worksite are not included in Total figures.
 (2) U/G exploration.
 (3) Preliminary data from CSST.
 -- Not reported.

MINING FATALITIES - ONTARIO 1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	14	3	8	0	4	5	0	0	17
1979	8	1	5	0	2	2	0	0	9
1980	15	5	12	0	4	4	0	0	20
1981	11	3	9	0	2	3	0	0	14
1982	8	1	5	0	2	2	0	0	9
1983	6	2	6	0	1	1	0	0	8
1984	12	4	13	0	1	2	0	0	16
1985	5	5	8	0	2	0	0	0	10
1986	10	2	9	0	2	1	0	2	12
1987	16	7	15	1	3	3	1	0	23
1988	11	6	7	0	7	1	2	2	17
1989	8	3	8	0	2	0	1	4	11
1990	7	2	7	0	2	0	0	0	9
TOTAL	131	44	112	1	34	24	4	8(1)	175

NOTE: Includes fatalities in uranium mines associated with conventional health and safety matters.
(1) These are not covered by mining regulators and are not included in Total figures.

MINING FATALITIES - MANITOBA 1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	2	0	2	0	0	0	-	0	2
1979	4	0	4	0	0	0	-	0	4
1980	3	3	5	0	0	1	-	0	6
1981	0	1	0	1	0	0	-	0	1
1982	2	1	2	1	0	0	-	0	3
1983	4	0	4	0	0	0	-	0	4
1984	1	0	1	0	0	0	-	0	1
1985	6	0	4	0	2	0	-	0	6
1986	1	1	2	0	0	0	-	0	2
1987	2	0	1	0	1	0	-	0	2
1988	0	4	3	1	0	0	-	0	4
1989	0	2	1	0	0	1	-	0	2
1990	1	0	1	0	0	0	-	0	1
TOTAL	26	12	30	3	3	2	-	0	38

NOTE: Deaths by natural causes and proven suicides are excluded.
- Not reported.

MINING FATALITIES - SASKATCHEWAN 1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY						OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	SOLUTION MINING FACILITIES	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	1	0	1	0	0	0	0	0	-	1
1979	2	0	2	0	0	0	0	0	-	2
1980	4	0	4	0	0	0	0	0	-	4
1981	4	0	4	0	0	0	0	0	-	4
1982	1	0	1	0	0	0	0	0	-	1
1983	1	0	1	0	0	0	0	0	-	1
1984	1	2	2	0	0	1	0	0	-	3
1985	2	0	2	0	0	0	0	0	-	2
1986	2	0	1	1	0	0	0	0	-	2
1987	2	1	2	0	0	0	0	1	-	3
1988	0	0	0	0	0	0	0	0	-	0
1989	0	1	1	0	0	0	0	0	-	1
1990	0	1	0	0	1	0	0	0	-	1
TOTAL	20	5	21	1	1	1	0	1	-	25

NOTE: Includes fatalities in uranium mines associated with conventional health and safety matters.
- Not reported.

MINING FATALITIES - ALBERTA

1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	0	0	0	0	0	0	0	-	0
1979	2	0	2	0	0	0	0	-	2
1980	5	0	4	0	1	0	0	-	5
1981	1	0	0	0	0	1	0	-	1
1982	1	0	0	0	0	1	0	-	1
1983	1	0	1	0	0	0	0	-	1
1984	2	0	1	0	1	0	0	-	2
1985	0	0	0	0	0	0	0	-	0
1986	0	0	0	0	0	0	0	-	0
1987	1	0	1	0	0	0	0	-	1
1988	0	0	0	0	0	0	0	-	0
1989	0	0	0	0	0	0	0	-	0
1990	0	0	0	0	0	0	0	-	0
TOTAL	13	0	9	0	2	2	0	-	13

NOTE: Only fatalities investigated by Occupational Health and Safety are included. Includes underground and surface coal mining, sands, gravel and quarry but does not include oil sands. Excludes heart attacks and other disease related fatalities.

- Not reported.

MINING FATALITIES - BRITISH COLUMBIA 1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	2	0	2	0	0	0	0	-	2
1979	1	3	2	2	0	0	0	-	4
1980	2	0	1	0	1	0	0	-	2
1981	3	1	2	1	1	0	0	-	4
1982	6	2	4	2	2	0	0	-	8
1983	3	4	2	0	4	0	1	-	7
1984	1	1	1	1	0	0	0	-	2
1985	4	2	1	3	1	0	1	-	6
1986	0	1	0	0	1	0	0	-	1
1987	4	3	2	2	1	1	1	-	7
1988	4 ^r	6 ^r	2	2 ^r	1 ^r	1	4	-	10 ^r
1989	2	4	5	1	0	0	0	-	6
1990	4	1	3	1	1	0	0	-	5
TOTAL	36	28	27	15	13	2	7	-	64

NOTE: Excludes deaths by natural causes, proven suicides and homicides, those off a minesite such as helicopter crashes and motor vehicle accidents. Fatalities that might have occurred at a placer mine are covered under Quarry (Sand and Gravel).

- Not reported.

r Revised data.

MINING FATALITIES - NORTHWEST TERRITORIES 1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	-	-	-	-	-	-	-	-	-
1979	2	0	1	1	0	-	-	-	2
1980	2	1	2	1	0	-	-	-	3
1981	1	0	0	1	0	-	-	-	1
1982	4	0	2	0	2(1)	-	-	-	4
1983	0	0	0	0	0	-	-	-	0
1984	3	0	2	0	1	-	-	-	3
1985	2	1	2	0	1(2)	-	-	-	3
1986	1	0	1	0	0	-	-	-	1
1987	1	0	1	0	0	-	-	-	1
1988	3	0	3	0	0	-	-	-	3
1989	0	0	0	0	0	-	-	-	0
1990	1	0	1	0	0	-	-	-	1
TOTAL	20	2	15	3	4	-	-	-	22

NOTE: (1) One is a surface road fatality (hit by pickup truck) and the other is an ice road fatality (grader went through ice).
 (2) Fatality on a surface road.
 - Not reported.

MINING FATALITIES - YUKON 1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY					OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION		
1978	0	0	0	0	0	0	0	-	0
1979	1	0	0	1	0	0	0	-	1
1980	2	0	1	0	0	1	0	-	2
1981	2	0	1	0	0	1	0	-	2
1982	0	0	0	0	0	0	0	-	0
1983	0	0	0	0	0	0	0	-	0
1984	0	0	0	0	0	0	0	-	0
1985	0	0	0	0	0	0	0	-	0
1986	0	0	0	0	0	0	0	-	0
1987	0	0	0	0	0	0	0	-	0
1988	1	0	1	0	0	0	0	-	1
1989	1	0	0	1	0	0	0	-	1
1990	0	1	0	0	0	0	1	-	1
TOTAL	7	1	3	2	0	2	1	-	8

NOTE: Fatalities that might have occurred at a placer mine are covered under Quarry (Sand and Gravel).
- Not reported.

MINING FATALITIES - CANADA 1978 to 1990

YEAR	TYPE OF EMPLOYER		ACTIVITY						OTHER	TOTAL
	COMPANY	CONTRACTOR AND MISC.	U/G	OPEN PIT	PLANT (Surface)	QUARRY (Sand & Gravel)	EXPLORATION	OTHER		
1978(1)	32	4	17	3	7	9	0	0	1(2)	36
1979	42	5	32	8	4	3	0	0	0	47
1980	51	12	42	3	8	8	2	0	0	63
1981	30	8	18	6	4	8	2	0	3(2)	38
1982	24	7	17	4	7(3)	3	0	0	0	31
1983	19	9	16	1	7	1	3	0	0	28
1984	29	8	28(4)	2	4	3	0	0	1(2)	37
1985	25	11	22	5	8(5),(6)	0	1	0	0	36
1986	21	7	21	1	4	2	0	0	2(7)	28
1987	32	15	30	4	5	5	3	0	0	47
1988	27 ^r	17 ^r	18	4 ^r	11 ^r	5	6	0	2(8)	44 ^r
1989	25	11	23	4	3	5	1	0	4(9)	36
1990	24	5	18	3	3	3	1	1(10)	0	29
TOTAL	381	119	302	48	75	55	19	1	13(11)	500

NOTE: See attached.
r Revised data.

NOTE:

- (1) Fatalities at DEVCO and in Northwest Territories were not reported for 1978.
- (2) Fatalities which occurred during transportation from residence to worksite are not included in Total figures.
- (3) Includes two fatalities in Northwest Territories, one of which occurred on a surface road (hit by truck) and the other one on an ice road (grader went through ice).
- (4) Includes one fatality which is a heart attack ascribed to heavy work which occurred at DEVCO.
- (5) Includes one fatality in Northwest Territories which occurred on a surface road.
- (6) Includes as well a fatality which occurred at DEVCO where a security guard was run down while attempting to apprehend a pilferer.
- (7) Includes a highway accident and a frozen prospector in Ontario which are not included in Total figures.
- (8) Includes a civilian injured by flyrock and a drowning in Ontario which are not included in Total figures.
- (9) Includes a self-employed worker at an abandoned surface plant, a worker killed while felling trees, a highway accident and a civilian killed while crossing railway tracks.
- (10) Fatality in Saskatchewan which occurred at solution mining facility.
- (11) All fatalities in this category are excluded from Total figures.

SOURCE:

Mine fatalities as reported by Chief Inspectors or corresponding authority of every mining jurisdiction in Canada. Compiled by EMR, January 1991.

APPENDIX 3

NATIONAL MINE ACCIDENT

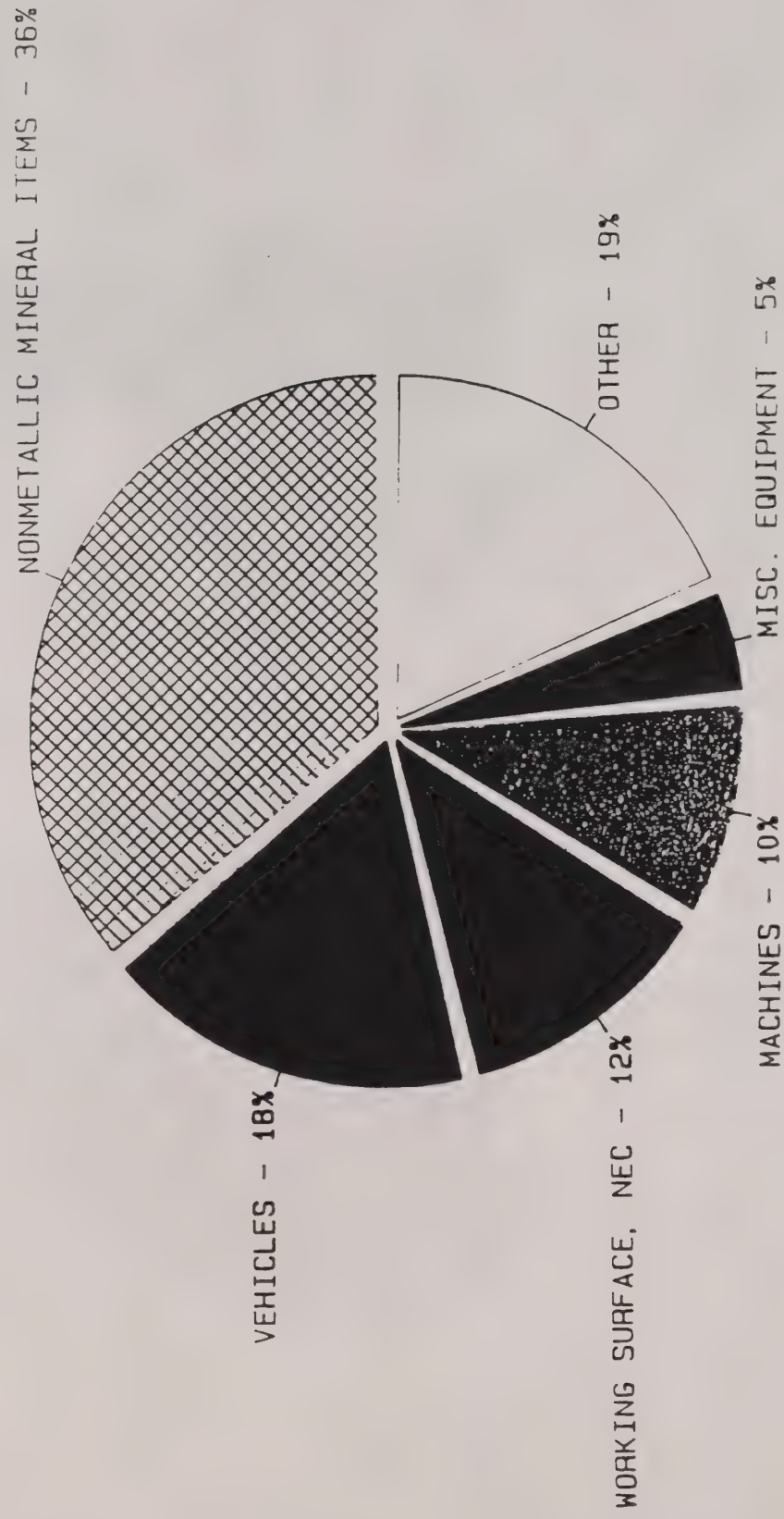
DATABASE

ACCIDENT AND FATALITY

FIGURES

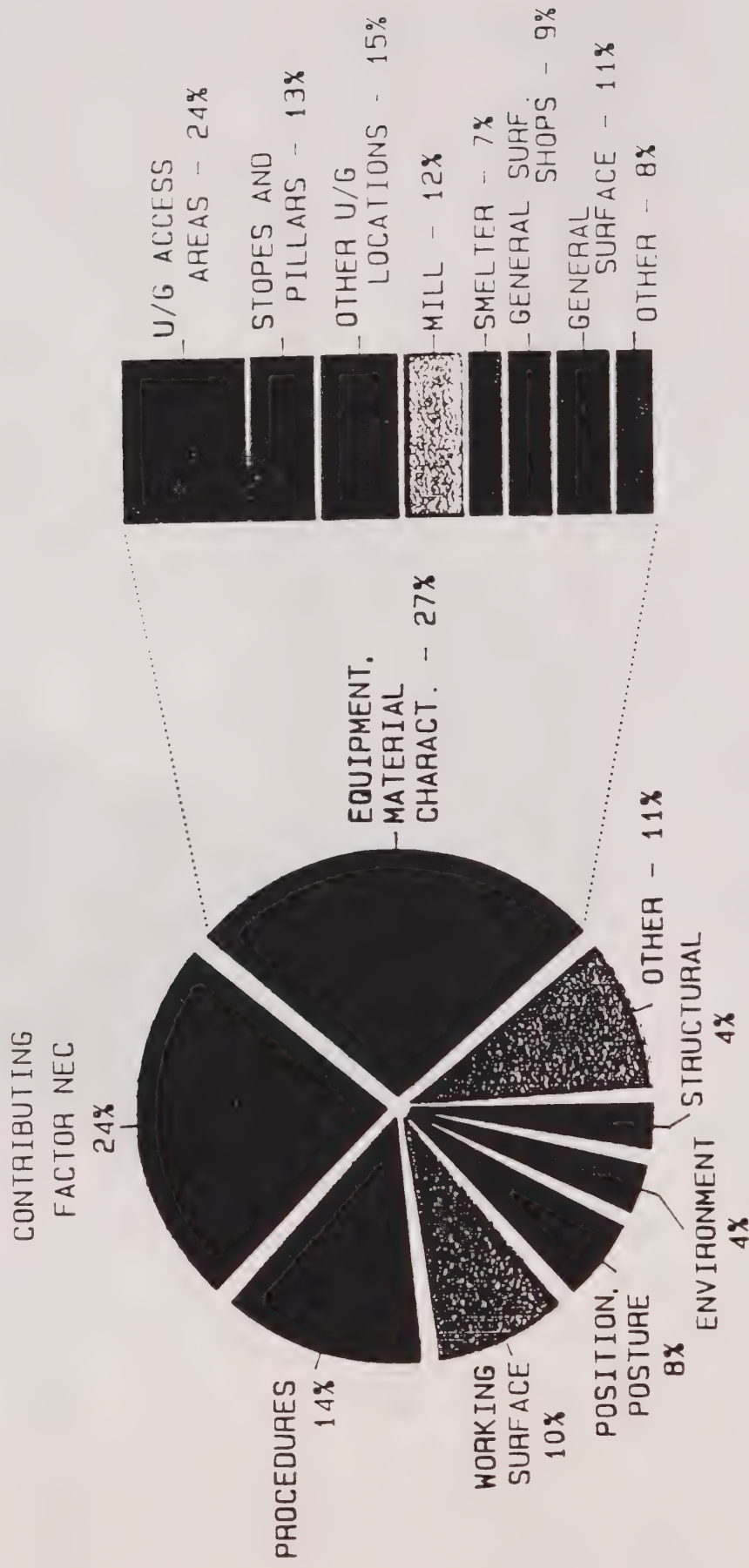
FATAL INJURIES BY SOURCE OF ACCIDENT

1986-90



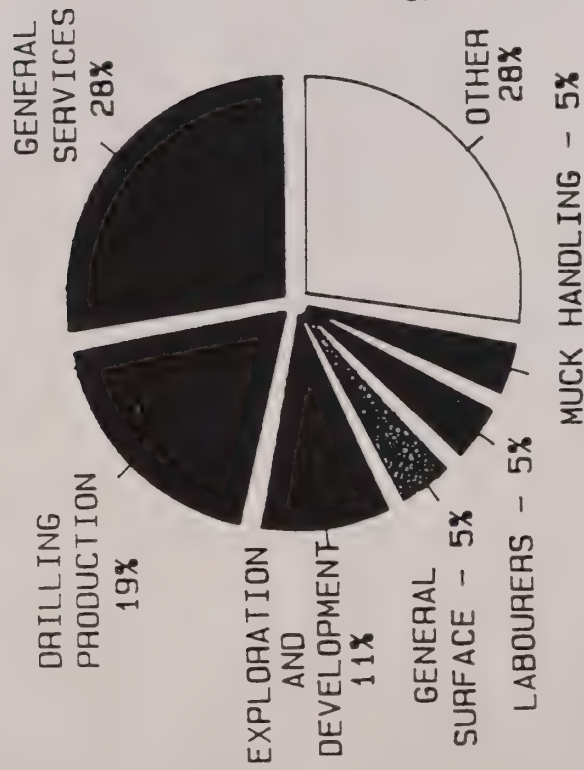
97 RECORDS

TIME-LOSS INJURIES BY CAUSE AND LOCATION, 1990



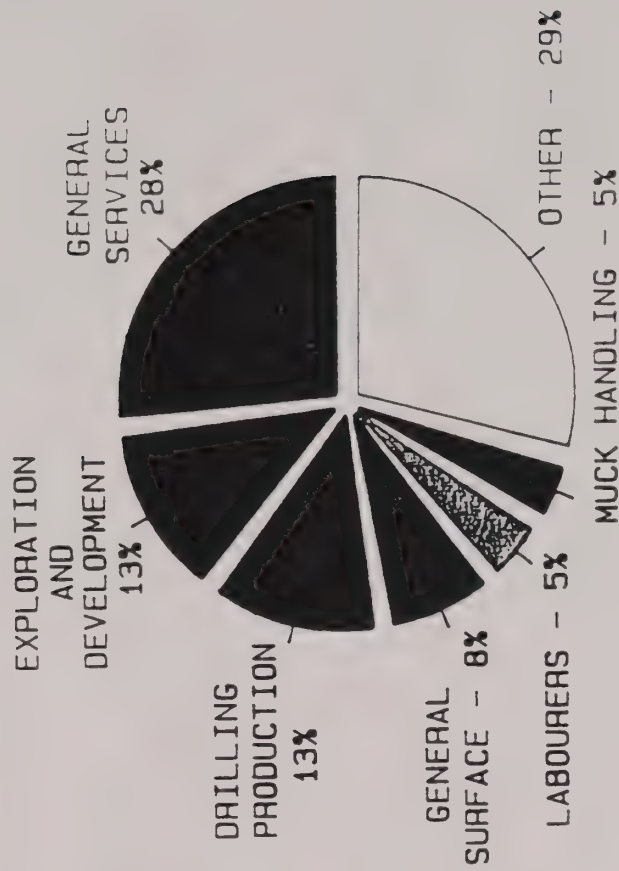
TIME-LOSS INJURIES BY OCCUPATION

1986-89



6,409 RECORDS

1990

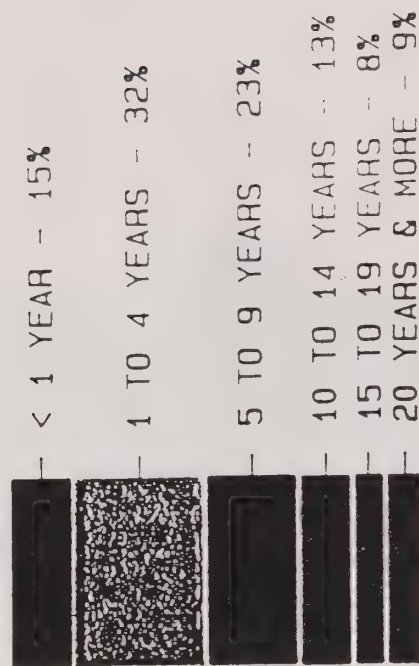


1,862 RECORDS

TIME-LOSS INJURIES OF DRILLING PRODUCTION WORKERS BY YEARS OF EXPERIENCE

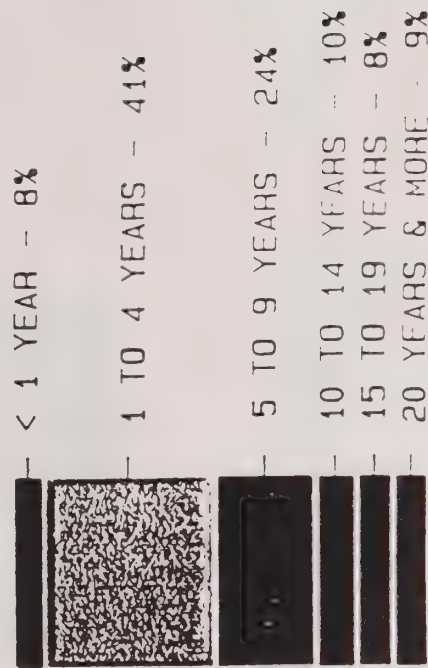
1986 TO 1989
1,074 RECORDS

DRILLING
PRODUCTION
OCCUPATIONS
19%



1990
195 RECORDS

DRILLING
PRODUCTION
OCCUPATIONS
13%



YEARS OF EXPERIENCE

48E CONFÉRENCE ANNUELLE DES MINISTRES DES MINES

Rapport annuel
1990

Association des Inspecteurs en chef des Mines

HALIFAX (Nouvelle-Écosse)
Du 22 au 24 septembre 1991

VEUILLEZ NOTER

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DANS LES MINES - ACCIDENTS MORTELS ET LÉSIONS AVEC
TEMPS PERDU - GRAPHIQUES

INTRODUCTION

MEMBRES

L'Association des inspecteurs en chef des mines regroupe les principaux responsables de la réglementation sur la santé et la sécurité dans les mines dans chaque province et territoire, à Travail Canada, à la Commission de contrôle de l'énergie atomique et à la Direction générale des explosifs, ainsi que les représentants du ministère fédéral de l'Énergie, des Mines et des Ressources (EMR) et de CANMET (Centre canadien de la technologie des minéraux et de l'énergie).

ÉNONCÉ DE MISSION

L'Association des inspecteurs en chef des mines est chargée des fonctions suivantes :

- a) encourager l'uniformisation de la législation;
- b) élaborer des codes de pratiques et des normes uniformes;
- c) effectuer des échanges de renseignements sur la technologie et l'expérience acquise en matière de santé et de sécurité dans les mines;
- d) faciliter la collaboration entre les diverses autorités de l'industrie minière au Canada pour répondre aux urgences : préparation, intervention et formation;
- e) déterminer les problèmes de santé et de sécurité qui sont d'intérêt commun et rechercher des solutions.

ACTIVITÉS STRATÉGIQUES EN 1990

Les inspecteurs en chef des mines se sont réunis à deux reprises en 1990 afin d'échanger des renseignements et de travailler ensemble sur des questions d'intérêt commun. Ces questions portaient sur l'effet des journées de travail prolongées dans les mines sur la santé et la sécurité des travailleurs, sur les stratégies régionales et nationales de secours miniers et de préparation en cas d'urgence, sur les statistiques des accidents mortels, des blessures et des autres accidents dans les mines, et sur l'établissement par l'ACNOR de normes concernant le matériel, les procédés et les procédures miniers.

PROLONGATION DE LA JOURNÉE DE TRAVAIL DANS LES MINES

Les inspecteurs en chef des mines, de concert avec Énergie, Mines et Ressources Canada et avec l'aide du *Bureau of Mines* (États-Unis) ainsi que des spécialistes de la santé professionnelle de l'université Simon Fraser, ont réalisé deux études sur l'effet épuisant pour la santé que provoque l'exposition aux impuretés des moteurs diesels ainsi que sur le stress qui en résulte. Les mines utilisées pour l'étude, toutes deux souterraines, étaient la Holt McDermot, en Ontario, et la Westmin H.W., dans l'île de Vancouver, en Colombie-Britannique. Ces études sont les premières du genre à avoir été effectuées dans des exploitations industrielles et constituent une première mondiale. La minutie des travaux a permis de franchir une nouvelle étape dans la compréhension des effets qu'ont les impuretés minières souterraines sur le stress, l'épuisement et la santé des ouvriers effectuant des quarts réguliers de 8 heures selon des horaires variables et des quarts de 10 heures et de 12 heures selon des horaires plus courts.

Les inspecteurs en chef espèrent continuer à promouvoir de nouvelles recherches dans ce domaine afin d'assurer la protection de la santé, de la sécurité et de la qualité de vie au travail des ouvriers, tout en favorisant la compétitivité de l'industrie grâce à l'amélioration de la productivité.

PROGRAMME NATIONAL DE SECOURS MINIER ET DE PRÉPARATION EN CAS D'URGENCE

Les inspecteurs en chef, par l'intermédiaire d'un comité de coordonnateurs des secours miniers, continuent à rechercher une plus grande uniformisation de la formation et des procédures de secours. Une base nationale de données sur le matériel et le personnel qualifié existants a été élaborée. Chaque instance a précisé les personnes-ressources principales qui faciliteraient la prestation de secours miniers en cas d'urgence.

DONNÉES STATISTIQUES SUR LES ACCIDENTS MORTELS, LES BLESSURES ET LES AUTRES ACCIDENTS DANS LES MINES

Énergie, Mines et Ressources Canada (EMR) et les inspecteurs en chef ont continué à accroître le nombre d'instances participantes et à enrichir la base nationale de données sur les accidents. Le système d'enregistrement électronique détaillé, utilisé en commun selon un prototype réalisé par la Colombie-Britannique et perfectionné par des informaticiens représentant chaque province, est maintenant en service et facilitera la saisie des données dans la base nationale de données mise au point et administrée par EMR. À mesure que les données s'accumuleront et que la base s'enrichira avec les années, les inspecteurs en chef comptent être davantage en mesure d'effectuer des analyses de tendances plus complexes qui leur permettront de définir des objectifs de prévention.

NORMES DE L'ASSOCIATION CANADIENNE DE NORMALISATION (ACNOR)

Les inspecteurs en chef ont continué à participer activement aux travaux du comité directeur tripartite du secteur minier et des sous-comités chargés d'élaborer de nouvelles normes en matière d'équipement, de procédés et de procédures miniers. Les domaines particulièrement visés sont la mise à l'essai des câbles d'extraction, les normes et les critères de démontage et le matériel de transport tout-terrain.

RÉGLEMENTATION EN MATIÈRE DE SANTÉ ET DE SÉCURITÉ

Les inspecteurs en chef ont examiné les tendances relatives aux règlements de santé et de sécurité, aux codes de pratiques et aux inspections. Un représentant des inspecteurs en chef a participé en 1990 à deux réunions de l'Organisation internationale du travail. Le Canada a envoyé, à la 5^e réunion tripartite, le délégué à une réunion de 56 pays tenue en mars 1990, pour examiner les conditions de travail dans les mines autres que les mines de charbon. En septembre 1990, l'Organisation internationale du travail a parrainé la participation du délégué à une réunion de 21 experts de réputation internationale chargés d'examiner un code de pratiques pour les mines à ciel ouvert. Le délégué canadien a présidé la réunion.

Signalons également que le bureau d'inspection de Russie a décidé de traduire le code de la Colombie-Britannique sur la santé et la sécurité dans les mines et leur remise en état et de l'utiliser comme norme de réglementation minière.

ALBERTA

Inspecteur en chef - Anant Prasad, ing.

ÉNONCÉ DE MISSION

La mission du service de santé et de sécurité au travail de l'Alberta est d'améliorer la santé et la sécurité des travailleurs de l'Alberta. Nous travaillons avec de nombreux groupes et particuliers afin d'accomplir cette mission, mais notre client est le travailleur.

MANDAT

Promouvoir la santé et la sécurité, fournir de l'aide et des conseils, surveiller l'application du programme d'hygiène et de sécurité au travail, et exécuter les lois et règlements pertinents de manière à réduire la gravité et la fréquence des blessures et des accidents sur les lieux de travail où le programme est mis en application.

DIMENSION DE L'ORGANISATION/STRUCTURE

L'Alberta est divisée en six régions. Le programme minier a été confié à la région du centre nord, où sont situées la plupart des mines et des carrières, et où se trouvent des mines de surface, des mines souterraines, des carrières, des sables bitumineux et le centre d'essai souterrain de l'AOSTRA (Bureau de recherche et de technologie des sables bitumineux de l'Alberta).

Dans une réorganisation récente, M. Anant Prasad a été nommé gestionnaire du programme minier. En cette qualité, il relève du directeur de la région du centre nord. M. Prasad a également été nommé directeur des mines conformément à la loi sur les carrières et à son règlement d'application. De plus, on a affecté au programme minier deux experts miniers et, à temps partiel, un spécialiste en mécanique. En fonction des besoins, on fait appel à d'autres spécialistes (ingénieurs en électricité et en mécanique, hygiéniste), en ayant recours à des sources de main-d'oeuvre internes ou externes.

DIMENSION ET CHAMP D'ACTION DE L'INDUSTRIE

Au total, trente-huit mines et carrières, dont de petites exploitations, les installations de l'AOSTRA et une mine souterraine, sont en exploitation en Alberta, les plus importantes étant les mines de charbon et les carrières de sables bitumineux. Environ 9 700 personnes travaillent dans l'industrie minière, dont les employés des exploitations de sables bitumineux de Fort McMurray (environ 6 800 personnes).

PRIX DE SÉCURITÉ

La société Smoky River Coal Ltd. a obtenu les trophées du Canada en 1990 dans la catégorie des mines de charbon. Elle a également gagné ce prix en 1986, en 1988 et en 1989.

Les récipiendaires du certificat de distinction spéciale pour dossier exemplaire en matière de sécurité sont les suivants :

- la société Les Charbons Fording, Limitée, pour la mine de charbon Genesee, où la fréquence est nulle depuis 1988;
- le Bureau de recherche et de technologie des sables bitumineux de l'Alberta, pour la fréquence nulle à son centre d'essai souterrain;
- la Syncrude Canada Ltd., pour une fréquence de blessures régulièrement peu élevée dans des conditions difficiles.

CHARBON

La production de charbon brut de l'Alberta a augmenté quelque peu en 1990, passant à 35,2 millions de tonnes par rapport aux 35 millions de tonnes de 1989. Les livraisons de charbon commercialisable ont chuté de 30,8 millions de tonnes à 30,4 millions de tonnes en raison d'un volume réduit commandé par l'Ontario Hydro ainsi que par les marchés japonais et coréen. Ce fléchissement de la demande de charbon a entraîné des réductions de l'effectif dans plusieurs mines d'exportation de l'Alberta.

Les compagnies d'électricité de l'Alberta consomment environ 70 % du charbon produit en Alberta, le reste étant écoulé sur les marchés de l'Ontario et outre-mer.

Sur le plan de l'expansion, la mine de la Cardinal River Coals Ltd., située près d'Hinton, et la mine Coal Valley de la Luscar Ltd., à proximité d'Edson, ont demandé à la Commission de conservation des ressources énergétiques (ERCB) un agrandissement du territoire visé par leur permis d'exploitation minière de manière à inclure trois grands secteurs nouveaux. Ces nouvelles concessions sont nécessaires pour assurer une production houillère ininterrompue aux taux actuels pendant la prochaine décennie. Un agrandissement analogue a été accordé à la Smoky River Coal Ltd. pour sa mine sud n° 12, située près de Grande Cache.

On termine actuellement l'évaluation du potentiel ultime pour le gaz de l'Alberta. Ces travaux incluent des estimations préliminaires du potentiel offert par des sources non classiques comme le méthane de gisements houillers. Les importants gisements de charbon de la province constituent à la fois un réservoir et une source de méthane, après des millions d'années de chaleur et de tassement de la végétation.

En Alberta, la mise en valeur du méthane de gisements houillers en est encore aux premières étapes de la recherche. Toutefois, au nom de la protection de l'environnement, on s'est interrogé sur la nécessité éventuelle de rapprocher les puits de méthane en gisement houiller, sur l'eau qui est en général produite en même temps que le gaz et sur la possibilité que ces mises en valeur se fassent dans les piémonts et dans les régions montagneuses de la province.

SABLES BITUMINEUX

Deux immenses carrières de sables bitumineux, Syncrude et Suncor, sont en exploitation dans la région de Fort McMurray. Les progrès de la science permettent maintenant d'espérer que la mise en valeur des sables bitumineux sera désormais effectuée efficacement et en respectant davantage l'environnement. La gestion efficace des travaux gigantesques d'exploitation des sables bitumineux constitue un défi permanent pour tous.

Synchrude Canada Ltd. a enregistré, en 1990, une production record de 9 millions de mètres cubes de pétrole brut synthétique, soit une hausse de près d'un demi-million de mètres cubes par rapport à 1989. Suncor Inc. a connu sa troisième meilleure année depuis le début de la production en 1967, avec environ 3 millions de mètres cubes de pétrole brut synthétique.

Plus des deux tiers du bitume albertain sont raffinés dans deux usines de valorisation de Fort McMurray. Le tiers restant sert à la fabrication d'asphalte et de goudron à bardeaux, de toitures et d'autres matériaux d'étanchéification, ou est acheminé vers des raffineries de l'Ontario et des États-Unis.

PRINCIPALES INITIATIVES

1. L'examen du règlement sur la sécurité dans les mines de charbon a eu lieu. Les commentaires et les suggestions découlant de la réunion tripartite sont l'objet d'un examen interne et seront regroupés dans une ébauche technique. Il a été proposé d'envoyer cette ébauche technique à tous les participants une fois qu'elle sera terminée, pour qu'ils en fassent une dernière étude et formulent des observations. Les documents définitifs seront présentés au conseil législatif à l'automne, pour examen.
 2. En 1990, le projet de démonstration de l'exploitation de filons épais s'est poursuivi à la mine souterraine de la Smoky River Coal Ltd. à Grande Cache. Ce projet vise à évaluer la faisabilité technique d'une méthode d'exploitation minière intégrée permettant l'extraction du charbon dans des filons de plus de 3,66 mètres (12 pieds) d'épaisseur en une seule opération. Dans le cadre de ce projet, quelques membres du comité consultatif technique se sont rendus en Afrique du Sud, en Australie et en Autriche pour examiner et évaluer de l'équipement susceptible d'être utilisé dans ce projet.
- Pendant toute l'année 1990, les travaux de conception du projet d'extraction commerciale des sables bitumineux d'OSLO (Other Six Lease Operators), d'une valeur de 4 milliards de dollars, se sont poursuivis. La coordination des nombreux aspects de ce projet d'envergure a été confiée à l'équipe d'examen

des demandes (EED) d'OSLO, mise sur pied par l'ERCB, et à ses huit sous-comités. Ces groupes incluent des représentants de l'industrie, des gouvernements fédéral et provincial, des municipalités, des Autochtones et des groupes intéressés au projet. Ces travaux préparatoires sont essentiels pour résoudre les problèmes techniques, environnementaux, sociaux et autochtones en préparation d'une audience publique. L'EED envisage de présenter un rapport détaillé et des recommandations à la Commission au printemps de 1991.

- En septembre 1990, OSLO a présenté une demande à l'ERCB en vue de donner de l'ampleur à son procédé de dragage et de récupération à eau froide, pour passer des essais sur place à un projet pilote en grandeur réelle. Connus sous le nom de Mildred Lake Pilot Project, ce procédé de dragage et d'écumage diffère sensiblement de la méthode d'extraction à eau chaude actuellement utilisée à Suncor et à Syncrude.
- OSLO a également mis à contribution un équipement d'essai aux installations de recherche de Petro-Canada Inc. dans le nord-est de Calgary pour mettre à l'épreuve divers procédés d'extraction à l'eau. Un procédé d'extraction à eau chaude a été choisi pour de plus amples essais.
- En 1990 également, Syncrude a entrepris la première étape d'essais sur place en vue d'évaluer la faisabilité de recouvrir les boues résiduelles des sables bitumineux d'eau naturelle. Le recouvrement des boues est l'une de plusieurs méthodes utilisées pour remblayer les résidus de sables bitumineux qu'étudient actuellement Syncrude et Suncor.
- Dans la région de Fort McMurray, le Bureau de recherche et de technologie des sables bitumineux de l'Alberta a continué à mettre en oeuvre son projet de centre d'essai souterrain par la construction de tunnels additionnels en préparation du forage de six nouveaux puits horizontaux.

PRINCIPALES MODIFICATIONS DE LA STRATÉGIE

Le service de santé et de sécurité au travail de l'Alberta étudie de nouvelles façons de procéder et de mettre davantage l'accent sur la concertation. Cette stratégie vise à aider les employeurs à évaluer dans quelle mesure leurs lieux de travail tiennent compte des exigences de la santé et de la sécurité et à les aider à améliorer le rendement. La priorité est accordée aux petites entreprises des secteurs à risque élevé. D'autres programmes viseront tout particulièrement les nouveaux travailleurs.

COLOMBIE-BRITANNIQUE

Directeur/Inspecteur en chef des mines - Ralph W. McGinn

Ministère de l'Énergie, des Mines et des Ressources pétrolières
Province de la Colombie-Britannique
Division des ressources minérales
Direction de la gestion des ressources

Mandat régi par la loi sur les mines (*Mines Act (1989)*) et par le code sur la santé et la sécurité dans les mines et leur remise en état (*Health, Safety and Reclamation Code for Mines*).

MANDAT

Assurer la protection des employés et de toutes les autres personnes contre les dangers évitables menaçant leur santé et leur sécurité et résultant directement ou indirectement de l'activité minière.

Assurer la protection et la remise en état des terres et des cours d'eau touchés par l'exploitation minière, et surveiller l'extraction du charbon et des ressources minérales afin d'assurer l'exploitation maximale des ressources et de limiter au minimum les perturbations écologiques par la mise en oeuvre de techniques d'ingénierie reconnues tenant compte de la conjoncture économique.

DIMENSION DE L'ORGANISATION/STRUCTURE

En 1990, la Direction comprenait cinquante-huit employés permanents à plein temps. Deux gestionnaires (normes de sécurité et d'hygiène et inspection; application, licences et autorisations) travaillent sous les ordres de l'inspecteur en chef qui, pour sa part, relève d'un sous-ministre adjoint. Chaque gestionnaire dirige un groupe de spécialistes affectés à Victoria et dans les sept bureaux régionaux. Au début de 1991, la Direction s'est restructurée en deux services et a reçu l'autorisation d'engager douze nouveaux employés permanents à plein temps.

DIMENSION ET CHAMP D'ACTION DE L'INDUSTRIE

	<u>Nombre</u>	<u>Effectif</u>
Grandes mines à ciel ouvert et souterraines	25	11 738
Gisements placériens	500	1 500
Mines en voie d'exploration	1 650	4 800
Sablières, gravières et carrières	2 000	6 000
Grands projets au stade de l'examen de la préparation de la mine	15	

PRINCIPALES INITIATIVES/MODIFICATIONS À LA STRATÉGIE OU À LA LÉGISLATION

Loi sur les mines et son règlement d'application - le projet de loi 56 a été adopté en troisième lecture en 1989. Cette loi et le code sur la santé et la sécurité dans les mines et leur remise en état ont été proclamés au printemps de 1990.

Principales modifications

- * Accroissement de la responsabilité des comités mixtes de santé et de sécurité en vue d'une autoréglementation.
- * Décentralisation/régionalisation de la prise de décision et de la délivrance des licences.
- * Augmentation de l'attention portée à l'environnement au moment de la fermeture de mines grâce à des lignes directrices plus claires et à l'amélioration des mécanismes de la remise en état subventionnée par l'industrie.
- * Établissement de structures de règlement des différends dans le cas de refus d'effectuer un travail dangereux, interdiction de la discrimination et correction des situations discriminatoires.
- * Uniformisation par rapport aux autres instances et parité avec elles.

- Restructuration de la législation en vue d'en améliorer la clarté, d'éliminer les ambiguïtés et de reformuler les dispositions dans un anglais clair et concis.
- Participation officielle accrue d'autres ministères et organismes gouvernementaux au processus d'autorisation et de délivrance des licences (recours à un intervenant unique).
- Application désormais volontaire du programme de surveillance médicale, jusque-là obligatoire, le déplacement d'un employé exposé aux risques d'inhalation de poussière n'étant plus une obligation.
- Amélioration considérable de la réglementation relative à l'hygiène du travail.

LOI SUR L'ÉVALUATION DES TRAVAUX DE PRÉPARATION DES MINES (MINE DEVELOPMENT ASSESSMENT ACT)

La loi sur l'évaluation des travaux de préparation des mines, qui donne un fondement légal au processus d'examen des travaux de préparation des mines, a été examinée en troisième lecture en 1990. Cette loi devrait être proclamée en 1991. Elle établit le processus d'évaluation des travaux de préparation des mines.

Principales dispositions

- Les projets visés doivent obtenir un certificat de préparation (remplaçant l'ancienne «approbation de principe»).
- Les projets visés incluent automatiquement les mines de charbon et les mines en roche dure, et peuvent également inclure d'autres types de mines, désignés par l'inspecteur en chef des mines, qui dispose d'un pouvoir discrétionnaire à cet égard, lorsque les répercussions possibles justifient un examen approfondi (p. ex., exploitation de gisements alluvionnaires, exploitation de sablières, de gravières et de carrières).

- Tant les installations sur place que les installations spécialisées hors chantier sont assujetties à l'évaluation des répercussions et un plan acceptable pour la gestion de l'environnement est nécessaire dans tous les cas.
- Le ministre de l'Énergie, des Mines et des Ressources pétrolières ainsi que le ministre de l'Environnement se partagent la responsabilité en tant que décisionnaires aux termes de la Loi et ils peuvent nommer des commissions d'évaluation indépendantes pour mener des enquêtes sur les demandes.
- Des dispositions prévoient la réalisation d'examens conjointement avec le gouvernement fédéral et d'autres instances.
- Des dispositions autorisent la consultation du public et des activités de médiation.

PRINCIPAUX PROJETS

- * Seize projets de recherche sur le drainage acide dans les mines ont été réalisés en 1990 et un programme de 1,5 million de dollars est proposé pour 1991.
- * Une étude sur les heures de travail est actuellement menée en collaboration avec le *Bureau of Mines* (États-Unis) et l'université Simon Fraser; cette étude vise les postes de travail de 12 heures proposés pour la mine Westmin, sur l'île de Vancouver.
- * La base de données sur les accidents dans les mines a été terminée et partagée avec les autres inspecteurs en chef.
- * L'évaluation des filtres de céramique sur l'équipement souterrain se poursuit et, après un échantillonnage complet, une concentration maximale admissible pour les poussières combustibles inhalables a été fixée à 1,5 partie par million.
- * Le guide technique portant sur le drainage minier acide (*Acid Mine Drainage Technical Guide*) a été terminé et a été reconnu à l'échelle mondiale.
- * Le guide traitant de l'élimination des résidus submergés (*Underwater Tailings Disposal Manual*) est terminé.

- * Les décharges de résidus à ciel ouvert de la Colombie-Britannique constituent les aménagements faits par l'homme les plus vastes du monde, quelques-unes étant formées de milliards de tonnes de roc déversées dépassant la hauteur de 400 mètres. On a créé un comité de recherche tripartite qui poursuit actuellement les cinq projets suivants :

- guide provisoire d'étude de conception;
- guide d'exploitation du dépôt temporaire de mine;
- caractéristiques de l'écoulement de défaillance;
- guide de surveillance des mouvements;
- base de données sur les défaillances.

MANITOBA

Directeur, Direction de l'inspection des mines - R.H. Glassford, ing.

Ministère du Travail

Division de la sécurité au travail et des services de soutien

Direction de l'inspection des mines

Le personnel affecté à l'inspection des mines veille à l'application de la *Loi sur la sécurité et l'hygiène du travail* ainsi que des règlements pris en vertu de cette loi, tout particulièrement le règlement 62/87 du Manitoba, qui régit l'exploitation des mines.

MANDAT

Le personnel chargé de l'inspection des mines effectue, dans toutes les exploitations minières du Manitoba, des inspections régulières et spéciales sur les questions d'hygiène et de sécurité au travail; il détermine les situations qui sont dangereuses ou qui risquent de présenter des dangers et fait respecter, au profit des travailleurs, les normes de sécurité et d'hygiène les plus rigoureuses prescrites par la loi et par les pratiques d'ingénierie reconnues.

DIMENSION DE L'ORGANISATION/STRUCTURE

Le personnel comprend un ingénieur minier de district, quatre inspecteurs des mines, un inspecteur des mines spécialisé en électricité, un moniteur en secours miniers, un ingénieur spécialisé en environnement, deux inspecteurs des carrières et trois employés de soutien.

La Direction de l'inspection des mines comprend trois régions : Winnipeg, Thompson et Flin Flon. Les inspecteurs résident à Winnipeg, à Thompson, à Flin Flon et à Snow Lake. Un ingénieur minier de district, qui demeure à Thompson, a la responsabilité de surveiller les inspecteurs de toutes les régions minières du nord et d'évaluer les données techniques relatives à l'exploitation des mines dans ces régions.

Dans la région de Winnipeg, le directeur exerce les mêmes fonctions en plus de veiller à la gestion de l'ensemble de la direction. La Direction de l'inspection des mines est une organisation autonome en raison de ses besoins particuliers en matière de compétence. Elle relève directement du directeur exécutif de la division.

DIMENSION ET CHAMP D'ACTION DE L'INDUSTRIE

L'industrie minière du Manitoba emploie environ 4 500 travailleurs dans les mines en exploitation. On compte treize mines souterraines en activité, deux mines à ciel ouvert et deux entreprises de fonderie et d'affinerie intégrées. Par ailleurs, 1 500 personnes additionnelles sont engagées tous les ans par des entrepreneurs en exploitation minière, par des entrepreneurs en préparation de mines, par des entrepreneurs en construction de mines, par des sous-traitants en forage au diamant, et par des exploitants de carrières, de sablières, de gravières et de tourbières.

PRINCIPALES INITIATIVES

La Direction de l'inspection des mines s'acquitte de son mandat et réalise ses programmes dans le cadre de deux fonctions de base :

1. une fonction proactive comprenant des inspections régulières, des inspections par ordre de priorité, des vérifications, des consultations et des examens préalables à l'exécution des travaux de génie; et
2. une fonction réactive qui se traduit par des enquêtes sur les plaintes, sur les refus de travailler, sur les événements inhabituels, sur les incidents et sur les accidents.

PRINCIPALES MODIFICATIONS À LA STRATÉGIE/LÉGISLATION

On a formé un comité tripartite pour revoir et mettre à jour la réglementation régissant l'exploitation des mines. L'examen de mise à jour sera terminé en 1991.

TERRE-NEUVE/LABRADOR

Inspecteur en chef – R.R. March (par intérim)

MANDAT

Le groupe de l'inspection des mines applique le règlement sur les mines (sécurité des travailleurs) (*Mines (Safety of Workmen) Regulations*) et les dispositions générales du règlement sur la santé et la sécurité au travail (*Occupational Health and Safety Regulations*), découlant de la loi sur la santé et la sécurité au travail (*Occupational Health and Safety Act*), en inspectant les lieux de travail dans les mines. Le but est de protéger la santé et la sécurité des travailleurs dans les mines et dans les installations liées à l'exploitation des minéraux* dans la province.

* Ces installations incluent les chantiers de construction de tunnels, les usines de traitement des minéraux ainsi que les sablières et gravières.

DIMENSION DE L'ORGANISATION ET STRUCTURE

Ingénieurs en inspection minière	1	
Techniciens en inspection minière	2	
Agents de formation en secours miniers	1	(Direction de l'éducation)
Techniciens-hygiénistes (Labrador)	2	(Section de l'hygiène)
Soutien	2	

DIMENSION ET CHAMP D'ACTION DE L'INDUSTRIE

Mines souterraines	1
Mines à ciel ouvert et principales carrières	6

L'industrie emploie quelque 3 600 travailleurs.

FICHE DE SÉCURITÉ

FRÉQUENCE

1990	5,8 accidents avec perte de temps par 200 000 heures-personnes
1989	5,2 accidents avec perte de temps par 200 000 heures-personnes
1988	4,6 accidents avec perte de temps par 200 000 heures-personnes
1987	4,0 accidents avec perte de temps par 200 000 heures-personnes
1986	3,7 accidents avec perte de temps par 200 000 heures-personnes

Moyenne des cinq dernières années 4,6 accidents avec perte de temps par
200 000 heures-personnes.

ACCIDENTS MORTELS

Le taux d'accidents mortels pour les dix dernières années s'élève à 0,018 par 200 000 heures-personnes, mais il a augmenté en 1990 pour passer à 0,05 par 200 000 heures-personnes du fait qu'il y a eu deux accidents mortels dans l'industrie.

PROJETS SPÉCIAUX

Aucun projet spécial n'est en cours à part la révision du règlement sur les mines (sécurité des travailleurs).

NOUVEAU-BRUNSWICK

**Directeur, Service de l'inspection - R.A. Blanchard, ing.
Commission de l'hygiène et de la sécurité au travail**

MANDAT

La Commission de l'hygiène et de la sécurité au travail du Nouveau-Brunswick a compétence sur toutes les sociétés réglementées par la province. Le mandat de la Commission consiste à réduire le taux d'accident et de maladie des travailleurs dans leur milieu de travail grâce à l'engagement et à la participation des travailleurs et des employeurs ainsi qu'à améliorer les conditions de sécurité et d'hygiène au travail en faisant de la recherche, de l'éducation et de la promotion ainsi qu'en faisant respecter les lois et les règlements.

DIMENSION DE L'ORGANISATION ET STRUCTURE

Le directeur du Service de l'inspection est l'ingénieur Raymond Blanchard. Il s'acquitte d'une double fonction : d'une part, il agit comme directeur des agents d'application et des gestionnaires s'occupant de la sécurité générale, de la sécurité minière et de la sécurité forestière; d'autre part, il est l'inspecteur en chef de la sécurité minière.

La Commission de l'hygiène et de la sécurité au travail comprend 50 employés répartis en cinq services, soit la politique et la planification, l'administration, l'éducation et les communications, l'hygiène au travail et l'inspection. Le Service de l'inspection compte 22 employés, dont 5 agents de la sécurité minière.

DIMENSION ET CHAMP D'ACTION DE L'INDUSTRIE

Le Nouveau-Brunswick compte quelque 300 000 travailleurs, dont 5 000 environ travaillent directement pour des compagnies minières.

PRINCIPALES MODIFICATIONS À LA LÉGISLATION

De concert avec l'industrie et les syndicats, la Commission de l'hygiène et de la sécurité au travail du Nouveau-Brunswick termine une révision approfondie des règlements sur la santé et la sécurité au travail, y compris les règlements sur la sécurité minière.

Les nouveaux règlements seront formulés de façon plus cohérente, seront plus faciles à comprendre et partageront clairement les responsabilités à l'égard des diverses obligations. Les premières tranches sont entrées en vigueur en juin 1989. On s'attend à ce que d'autres tranches prennent effet d'ici l'automne 1991.

TERRITOIRES DU NORD-OUEST

Directeur et Inspecteur en chef - W.O.J. Skelly
Division de la sécurité dans les mines
Ministère de la Sécurité et des Services publics
Gouvernement des Territoires du Nord-Ouest

DIMENSION ET STRUCTURE DU MINISTÈRE

La Division de la sécurité dans les mines fait partie du ministère de la Sécurité et des Services publics. Le directeur et inspecteur en chef relève du sous-ministre.

La Division de la sécurité dans les mines comprend neuf employés : un directeur/inspecteur en chef, un coordonnateur de la formation minière, un ingénieur en mécanique et en électricité, un ingénieur spécialisé en environnement, un surintendant des secours miniers, trois inspecteurs et un employé en secrétariat.

Les inspections de la Division de la sécurité dans les mines portent sur l'ensemble des mines, des sablières, des gravières et des carrières.

Les inspecteurs de la Division de la sécurité dans les mines sont également des inspecteurs adjoints des explosifs et ils appliquent la législation et la réglementation sur les explosifs.

DIMENSION ET CHAMP D'ACTION DE L'INDUSTRIE

Il y avait sept mines en exploitation dans les Territoires du Nord-Ouest en 1990. Six d'entre elles étaient des mines souterraines, et l'autre, une mine à ciel ouvert.

L'industrie minière employait directement quelque 2 100 personnes en 1990.

MODIFICATIONS/INITIATIVES - LÉGISLATION

La Division de la sécurité dans les mines du ministère de la Sécurité et des Services publics a entrepris, en 1990, la révision et la refonte complète de la loi et du règlement sur la sécurité minière. La loi et le règlement révisés seront envoyés aux syndicats et à l'industrie pour consultation et examen. On espère que la nouvelle loi sera déposée à la Chambre à l'automne de 1991.

NOUVELLE-ÉCOSSE

Directeur, Section de la sécurité minière - C.J. White, ing.
Ministère du Travail de la Nouvelle-Écosse

MANDAT

La Section de la sécurité minière du ministère du Travail de la Nouvelle-Écosse est chargée d'assurer le respect par l'industrie minière de la loi sur la santé et la sécurité au travail (*Occupational Health and Safety Act*) et des règlements s'y rapportant. La Société de développement du Cap-Breton relève de la compétence de Travail Canada. La Section offre également de la formation en secourisme et en secours miniers et, pour le compte de la Commission d'examen, exécute le programme d'accréditation pour les mines de charbon.

DIMENSION ET CHAMP D'ACTION DE L'INDUSTRIE

L'industrie minière, y compris les puits, les carrières, les mines souterraines de charbon et les mines en roche dure, doit satisfaire aux prescriptions du règlement sur les mines de charbon (*Coal Mines Regulation*) et du règlement sur les carrières et les mines métallifères (*Metalliferous Mines and Quarries Regulations*).

DIMENSION DE L'ORGANISATION ET STRUCTURE

Les bureaux régionaux se trouvent à Glace Bay, à Stellarton et à Springhill; l'administration centrale est à Halifax.

La Section de la sécurité minière compte six agents de sécurité, un superviseur, un directeur et deux employés de soutien.

La Section administre un poste de secours miniers complètement équipé à son bureau de Stellarton.

MODIFICATIONS/INITIATIVES RELATIVES À LA LÉGISLATION

Le nouveau règlement sur le dynamitage est entré en vigueur le 1^{er} mars 1991.

Voici les principales modifications apportées :

- responsabilité et pouvoir accrus du boutefeu;
- un code de pratiques est maintenant requis pour les forages se faisant à moins de six mètres d'un trou chargé;
- un programme complet et révisé d'accréditation touche désormais environ 500 personnes qualifiées dans l'usage des explosifs;
- une nouvelle catégorie de boutefeux «d'utilisation restreinte» est établie pour les spécialistes;
- cours de recyclage exigé tous les trois ans.

La loi sur les carrières et les mines métallifères (*Metalliferous Mines and Quarries Act*) ainsi que la loi sur la réglementation des mines de charbon (*Coal Mines Regulation Act*) font l'objet d'une révision et seront prêtes pour examen par l'industrie et les syndicats en 1991.-

ONTARIO

Directeur - P.V. Kivisto, ing.

Direction de la santé et de la sécurité dans les mines

MANDAT

La Direction de la santé et de la sécurité dans les mines a pour objectif d'inciter les travailleurs et les gestionnaires de l'industrie minière de l'Ontario à créer un milieu de travail sûr et salubre. Grâce à la promotion active du système de responsabilité interne (SRI), la Direction encourage les parties intéressées à coopérer en ce sens par la détection et le contrôle des situations dangereuses sur les lieux de travail.

La Direction applique la *Loi sur la santé et la sécurité au travail*, SRO 1980, chap. 321, le règlement 694 modifié par le règlement ontarien 258/87 et le règlement sur les mines et les équipements miniers, le règlement sur les substances désignées et le règlement 633/86 applicable à l'industrie pétrolière, à l'industrie gazière et aux industries connexes en mer.

Les activités de la Direction touchent 194 mines souterraines, 60 mines à ciel ouvert, 6 613 sablières et gravières, 485 carrières, 49 usines et laboratoires métallurgiques et de traitement des minerais ainsi que 49 entreprises d'exploitation d'argile, de schistes et de tourbe.

En 1990-1991, la Direction :

A effectué 2 098 inspections, qui ont abouti à 2 505 ordonnances, dont 95 ordres de suspendre les travaux.

A fait enquête sur tous les accidents mortels et a publié des rapports sur les enquêtes. En 1990-1991, 9 accidents mortels ont fait l'objet d'une enquête, dont 7 relevaient du champ d'application du règlement sur les mines.

A fait enquête sur 16 refus de travailler. A également fait enquête sur 229 plaintes concernant des conditions préjudiciables à la sécurité ou à la santé.

A fait des recherches, a analysé des données et a rédigé des bilans à l'intention du comité chargé de l'examen de la législation minière, dans les domaines suivants :

- électricité;
- levage dans les puits de mine et inspections;
- trémies de chargement;
- mesures de l'échappement des diesels;
- arsenic dans les mines souterraines;
- radon dans les mines autres que les mines d'uranium;
- explosifs ayant des ratés;
- travailleurs-inspecteurs;
- amortisseurs de chute;
- heures de travail;
- contrôle des pressions des terrains;
- premiers soins;
- cantines et toilettes.

A effectué 845 essais de câbles pour mesurer la ductilité des fils de fer et la résistance des câbles au laboratoire d'essai des câbles métalliques.

A effectué des études en milieu de travail afin de déterminer l'exposition à la poussière, aux gaz, à l'arsénopyrite, aux émissions des diesels et aux fumées.

A effectué un examen préalable à la mise au point d'une nouvelle technologie de traitement minier, de l'utilisation de nouvelles méthodes de construction et d'installation de matériel, de modifications importantes à des techniques minières et à la technologie, ainsi qu'à des ajouts et à des modifications destinés à assurer le respect de la loi et du règlement.

A assuré de la formation en sauvetage minier : 995 participants étaient inscrits au programme de formation en sauvetage minier et 31 équipes de 7 personnes ont participé à 8 concours de district en sauvetage minier. Les agents de sauvetage minier ont prodigué 6 843 jours-personnes de formation. Ce total n'inclut pas la formation pour les concours ou l'aide en cas d'urgence qui sont venues s'ajouter au niveau du district et de la province. Les équipes de sauvetage minier sont intervenues dans 63 cas d'urgence.

A dirigé cinq ateliers, dans le cadre d'un projet conjoint de l'industrie, des syndicats et du ministère, pour promouvoir le système de responsabilité interne. Les ateliers ont eu lieu dans des localités du nord et du sud de l'Ontario. En tout, cent cinq représentants de la direction et des syndicats de l'industrie minière ont participé à ces ateliers.

A organisé des programmes de recherche coopératifs. Le ministère du Travail, par l'intermédiaire de la Direction de la santé et de la sécurité dans les mines, s'est engagé dans un certain nombre de programmes de recherche en collaboration avec le ministère fédéral de l'Énergie, des Mines et des Ressources (Centre canadien de la technologie des minéraux et de l'énergie) et avec le *Bureau of Mines* (États-Unis). Ces initiatives englobent les programmes et les études portant sur les points suivants : technologie des câbles métalliques et des monte-charge; effet des heures de travail prolongées; mécanique des roches et contrôle des pressions des terrains.

A publié et a diffusé à grande échelle des rapports trimestriels sur le rendement de l'industrie dans des domaines comme les incidents, les accidents, les accidents mortels, les poursuites et les avis de danger.

A effectué neuf vérifications de mines en vue d'évaluer le programme de l'industrie en matière de contrôle des pressions des terrains et de déterminer les améliorations nécessaires, ainsi que des vérifications de l'intégrité des contenants de stockage de surface.

A tenu à jour une base de données informatisée sur les incidents inhabituels comme les chutes de terre et les coups de terrain afin de cerner les tendances et les causes et de déterminer des mesures de prévention.

A participé à l'enrichissement régulier de la base nationale de données sur les accidents dans les mines.

A présidé le comité de direction de l'ACNOR chargé des normes minières et a participé aux travaux de plusieurs sous-comités s'occupant des normes.

Direction de la santé et de la sécurité dans les mines

Données sur les inspections et les accidents mortels

	1990-1991	1989-1990
Stations de sauvetage minier	8	7
Sous-stations de sauvetage minier	45	46
Mineurs recevant de la formation en sauvetage minier	995	700
Essais de câbles métalliques	834	942
Revenus provenant des essais de câbles métalliques	260 934 \$	238 874 \$
Enquêtes sur des accidents mortels	9	11
Enquêtes sur des refus de travailler	16	20
Rapports sur des incidents inhabituels	262	271
Heures consacrées à des enquêtes sur des plaintes	2 406	2 062
Examens préalables à la mise au point	7 715	8 284
Rapports d'inspection	3 632	2 782
Ordonnances prises	2 505	3 825
Ordres de suspendre les travaux	95	89
Cas de poursuite	10	14
Condamnations	10	11
Amendes	126 000 \$	100 000 \$

Association
pour la
prévention
des accidents
dans les mines
ontariennes

C.P. 1468

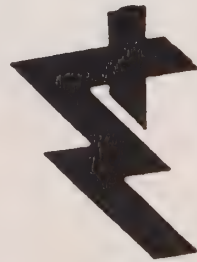
147, rue McIntyre ouest
North Bay (Ontario)

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(705) 472-4140

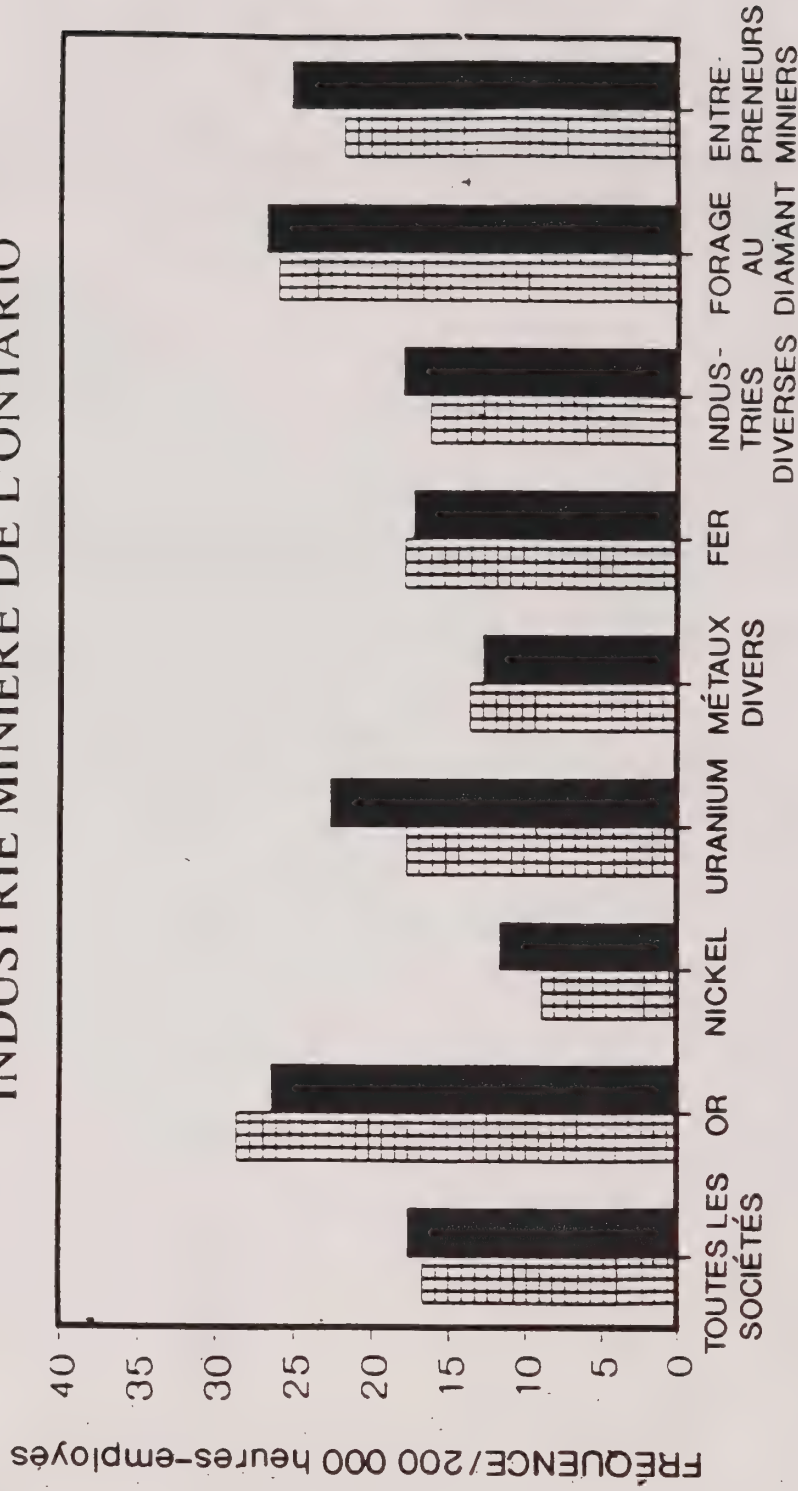
Télocopieur:



(705) 472-5800



FRÉQUENCE TOTALE DES BLESSURES AYANT NÉCESSITÉ DES SOINS MÉDICAUX

INDUSTRIE MINIÈRE DE L'ONTARIO



 FIN DE L'EXERCICE 1989
  DONNÉES FINALES DE DÉCEMBRE 1990

SOURCE: RAPPORT MS0101.1 DE L'APAMO

QUÉBEC

La Commission de la santé et de la sécurité du travail (CSST) du Québec n'a rien de particulier à signaler à cette date.

Vous trouverez, à la page 49, un rapport des activités de l'Association paritaire pour la santé et la sécurité du travail du secteur minier (A.P.S.M.).

SASKATCHEWAN

Unité de la sécurité minière - B. Allan, ing., inspecteur en chef

DIMENSION DE L'ORGANISATION ET STRUCTURE

L'Unité de la sécurité minière comprend quatre personnes, dont l'inspecteur en chef. On compte deux ingénieurs et deux spécialistes. L'inspecteur en chef relève du directeur exécutif de la Direction de la santé et de la sécurité au travail du ministère des Ressources humaines, du Travail et de l'Emploi. L'Unité s'occupe de trente exploitations minières et d'une dizaine de lieux de production possibles.

ACTIVITÉS

1. Le travail courant comprend les inspections, la surveillance et la formation. Lorsque les inspections et l'analyse des accidents montrent que le programme de sécurité générale porte fruit, la mine est alors davantage vérifiée qu'inspectée. Aux endroits où il faut apporter des améliorations, l'Unité met sur pied le comité et entreprend la formation des ouvriers afin d'encourager la mise en oeuvre d'un programme de sécurité et de formation efficace à la mine.
2. Une attention particulière est accordée aux nouvelles mines afin que chacune commence ses activités en s'appuyant sur un programme de sécurité efficace.
3. On procède actuellement à l'élaboration d'un guide de procédures pour l'Unité.
4. Le règlement de 1991 concernant les mines (*Mines Regulations 1991*) est terminé et attend l'approbation du Parlement.

PROJETS

1. L'Unité de la sécurité minière et l'Unité de l'irradiation élaborent conjointement des lignes directrices dans le but de surveiller l'activité aux mines à teneur élevée en uranium ainsi qu'aux mines où les possibilités d'infiltration de radon

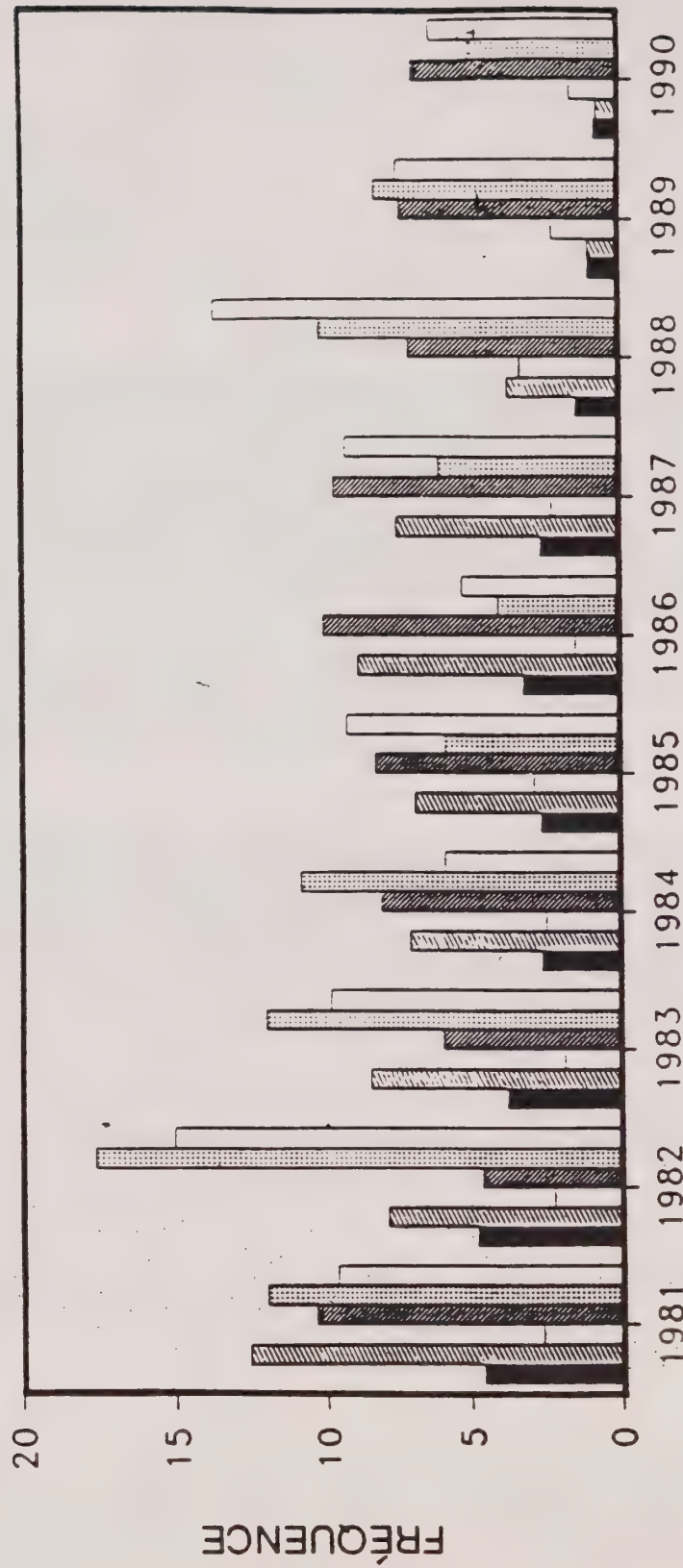
dans l'eau sont élevées. Les plans des mines souterraines sont examinés de façon à ce que, à l'étape de la planification, on accorde suffisamment d'attention aux facteurs de ventilation, d'évacuation et de régularisation des eaux. Pour mener à bien les étapes de l'exploration et de la mise en valeur, le nouveau règlement sur les mines exige que les trous de forage d'exploration soient jointoyés suffisamment pour empêcher les infiltrations d'eau subséquentes dans les ouvrages.

2. On se penchera sur l'élaboration de codes de pratiques en 1991-1992.

FRÉQUENCE ET GRAVITÉ DES ACCIDENTS DANS L'INDUSTRIE MINIÈRE

L'amélioration de la situation à long terme s'est poursuivie en 1990 grâce à un certain nombre de facteurs, dont la stabilité de la main-d'oeuvre, l'amélioration des programmes généraux de perfectionnement et de sécurité et la régularité des inspections. Il y a eu un accident mortel.

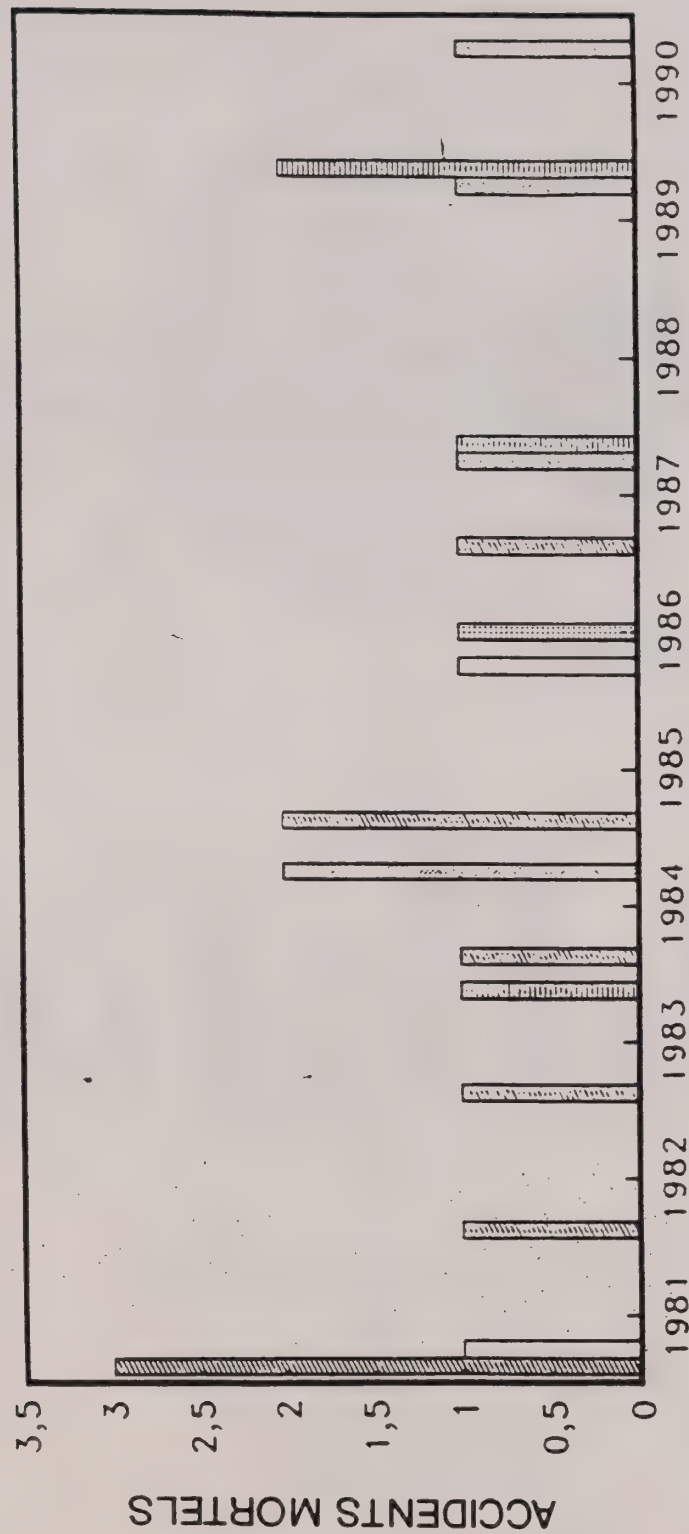
INDUSTRIE MINIÈRE DE LA SASKATCHEWAN FRÉQUENCE DES ACCIDENTS AYANT ENTRAÎNÉ DES PERTES DE TEMPS, 1981 À 1990



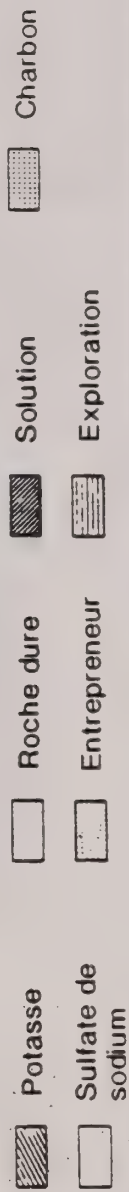
INDUSTRIE MINIÈRE

- Potasse
- Charbon
- Roche dure
- Sulfate de sodium
- Solution
- Entrepreneurs

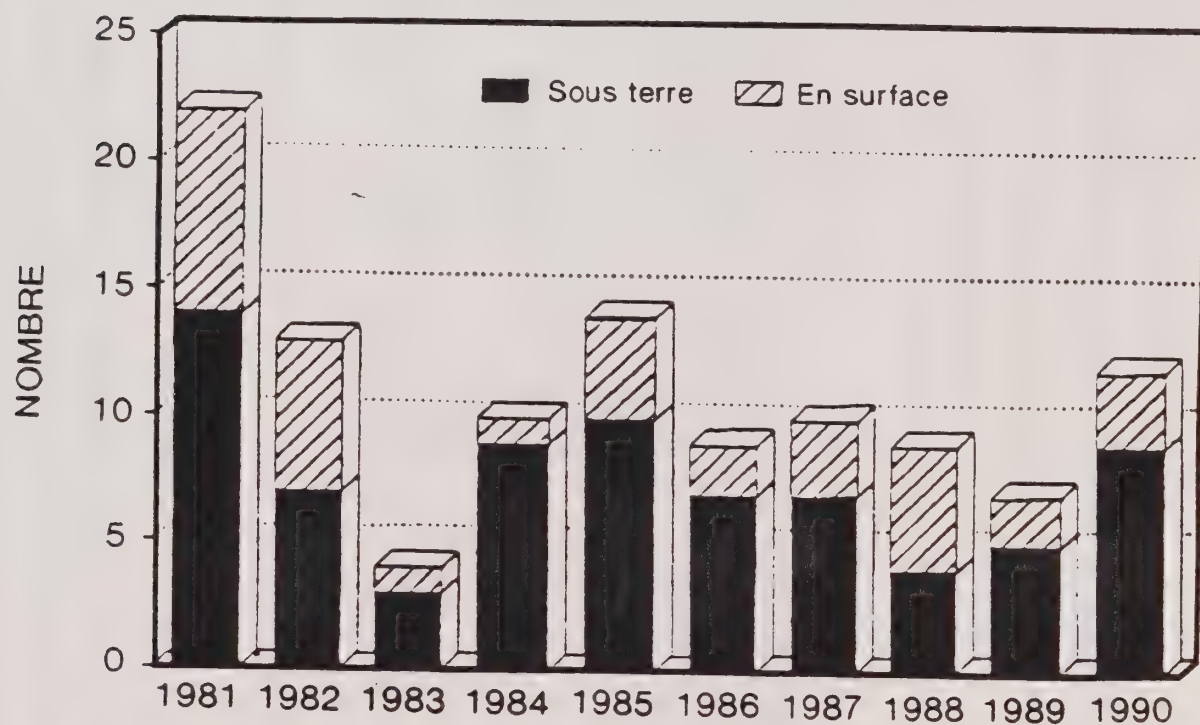
ACCIDENTS MORTELS DANS LES MINES DE LA SASKATCHEWAN, 1981 À 1990



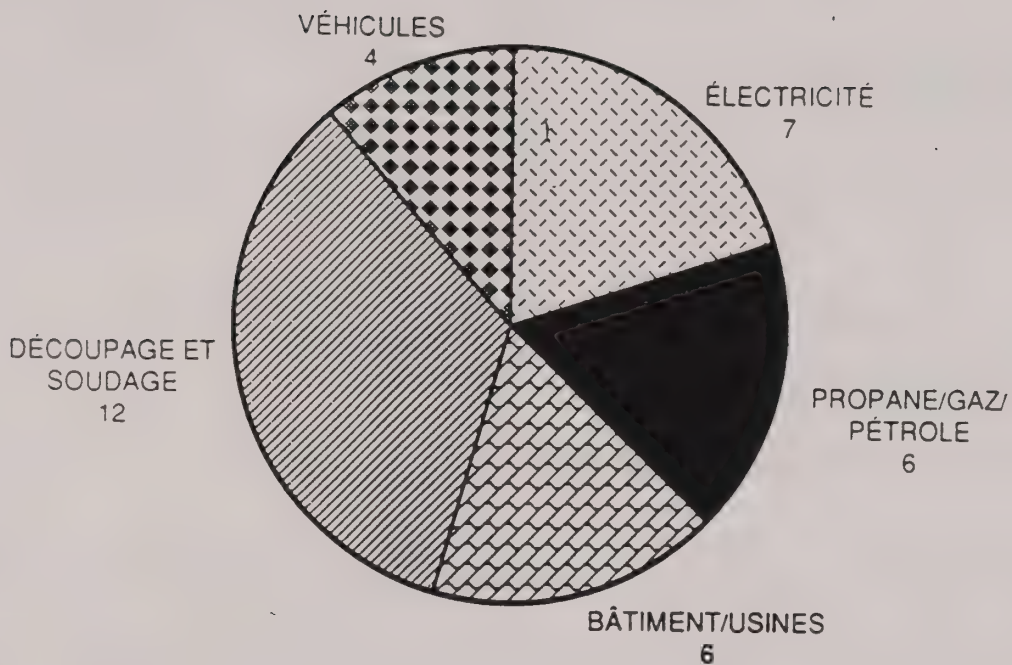
INDUSTRIE MINIÈRE



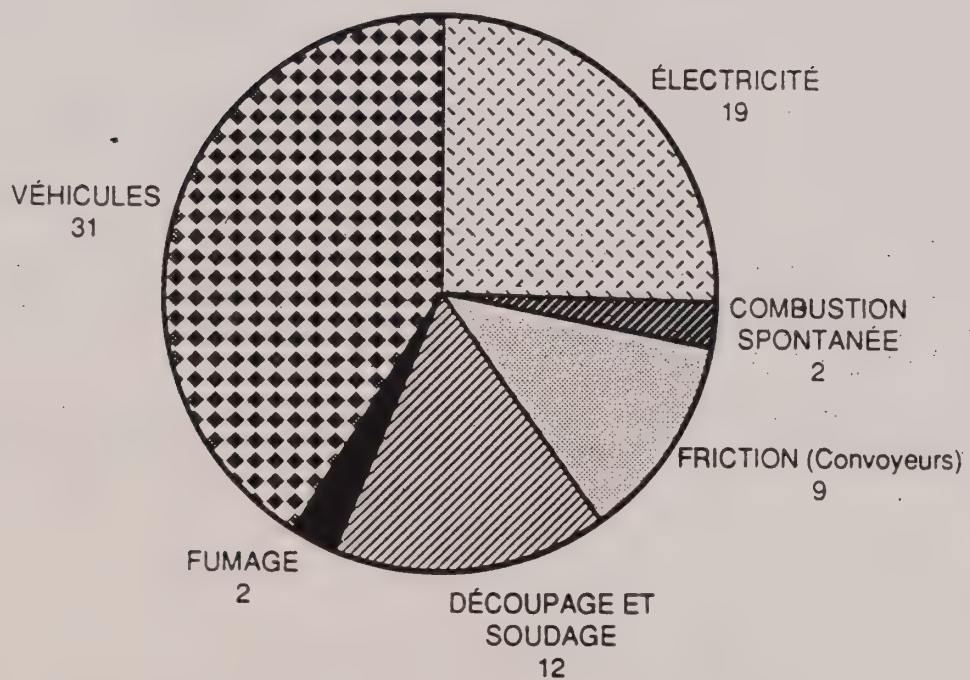
FRÉQUENCE DES INCENDIES DANS LES MINES DE LA SASKATCHEWAN ET CAUSES, 1981 À 1990



EN SURFACE



SOUS TERRE



YUKON

Inspecteur en chef des mines - Naresh Prasad, ing.
Ministère de la Justice
Santé et sécurité au travail

DIMENSION ET STRUCTURE DE L'ORGANISATION

L'Unité de la sécurité minière fait partie de la Direction de la santé et de la sécurité au travail, et l'inspecteur en chef des mines relève du gestionnaire de cette direction.

Quatre personnes sont affectées à l'Unité de la sécurité minière : l'inspecteur en chef des mines, l'inspecteur de la sécurité minière, le surintendant des secours miniers et un employé en secrétariat.

En raison du caractère cyclique de l'industrie minière, on s'attend à ce que les employés de l'Unité de la sécurité minière puissent effectuer, si le temps le permet, des inspections de sécurité dans des entreprises autres que minières.

DIMENSION ET CHAMP D'ACTION DE L'INDUSTRIE

L'industrie minière constitue le secteur le plus important de l'économie du Yukon. En 1990, il y avait 2 mines en production qui employaient plus de 100 personnes. Il y avait également 2 autres exploitations minières souterraines, dont l'une extrayait de l'or mêlé à du gravier gelé. Le Yukon possède en outre quelque 195 gisements placériens aurifères qui emploient environ 700 personnes sur une base saisonnière. Les principaux minéraux produits sont le zinc, le plomb, l'or et l'argent. En 1990, la valeur de la production de minéraux s'est chiffrée à 509 millions de dollars.

L'industrie minière emploie quelque 1 600 travailleurs dans les mines en production ou en préparation. En 1990, il y a eu un accident mortel et le taux d'accident a été de 5,0.

ÉNERGIE, MINES ET RESSOURCES CANADA

Division des explosifs - Inspecteur en chef des explosifs - R. Shaw

Mandat autorisé en vertu de la *Loi sur les explosifs* et de son règlement d'application.

MANDAT

Exécuter la *Loi sur les explosifs* et son règlement d'application afin d'assurer la sécurité du public et des travailleurs au cours de la fabrication et de l'entreposage des explosifs ainsi que d'assurer la sécurité pendant le transport et l'utilisation de ces produits.

DIMENSION ET STRUCTURE DE L'ORGANISATION

La Division des explosifs comprend vingt-huit employés à plein temps. L'administration centrale, qui se trouve à Ottawa, regroupe le directeur-inspecteur en chef des explosifs, le sous-directeur, quatre inspecteurs-spécialistes, un technicien en explosifs et sept employés de soutien. Il y a cinq bureaux régionaux, situés à Halifax, à Québec, à Ottawa, à Calgary et à Vancouver. Chaque bureau régional compte un ou deux inspecteurs et un employé en secrétariat.

DIMENSION ET CHAMP D'ACTION DE L'INDUSTRIE

Les explosifs, les agents propulseurs, les pièces pyrotechniques et les produits explosifs ou pyrotechniques sont tous des produits réglementés.

Usines	environ 100
Dépôts des fournisseurs	environ 180
Dépôts des utilisateurs	environ 2 000
Nombre de licences d'importation par année	environ 800
Valeur des biens par année	environ 350 000 000 \$

PRINCIPALES INITIATIVES

Aucune réalisation récente à signaler.

OBJECTIF DE LA DIVISION

Le principal objectif de la Division des explosifs consiste à contrôler la fabrication, l'entreposage et le transport des explosifs afin d'assurer la sécurité du public et la conformité aux dispositions de la Loi et du Règlement. La responsabilité du transport des explosifs a été cédée à Transports Canada aux termes de la *Loi sur le transport des marchandises dangereuses*, la Division des explosifs ayant conservé un rôle consultatif.

La Division n'exerce aucun contrôle dans les domaines suivants :

- a) l'utilisation des explosifs, réglementée par les provinces;
- b) les explosifs qui relèvent de la compétence du ministère de la Défense nationale.

Moyens de contrôle

Le contrôle de la fabrication et de l'entreposage des explosifs est assuré par un système de délivrance de permis et d'inspection.

Chaque usine d'explosifs et chacun des bâtiments de l'usine qui sert à l'utilisation ou à l'entreposage des explosifs doivent détenir un permis délivré par la Division. Cette mesure s'applique aux explosifs d'usage industriel, aux feux d'artifice, aux pièces pyrotechniques d'usage militaire ou industriel, aux munitions ainsi qu'à tout autre dispositif explosif. De même, aucun explosif ne peut être importé au Canada sans permis. En outre, les explosifs particuliers devant être fabriqués ou importés doivent d'abord faire l'objet d'une autorisation même si, dans le cas des produits intérieurs, la fabrique détient déjà un permis. L'autorisation n'est généralement accordée par

l'inspecteur en chef des explosifs qu'après examen des échantillons par le Laboratoire canadien de recherche sur les explosifs, qui fait lui-même partie d'EMR.

Des permis sont également exigés pour les dépôts, qu'ils soient ou non situés à l'usine, ainsi que pour les camions transportant une charge qui dépasse un certain volume. La délivrance des permis applicables aux camions de transport sera bientôt prise en charge par la Direction générale du transport des marchandises dangereuses.

Les permis sont accordés si les demandes reçues indiquent que les camions, les opérations et les bâtiments proposés satisfont aux critères de sécurité. Les inspections garantissent le respect des normes.

Tous les membres de la Gendarmerie royale du Canada (GRC) sont des sous-inspecteurs des explosifs. La GRC contribue à l'élaboration des normes concernant les dépôts et ses membres inspectent les dépôts des usagers une fois par an afin de vérifier le respect des normes et de bien connaître l'emplacement des dépôts d'explosifs.

Outre la délivrance de permis et les inspections, qui sont les éléments officiels les plus importants du contrôle, la Division est chargée d'un vaste programme éducatif, qui revêt à la fois un caractère informel, à l'occasion des discussions avec l'industrie, et un caractère plus officiel au moyen des activités suivantes :

- a) publications traitant des normes, de la sécurité et des accidents;
- b) participation à des séminaires et à des programmes de formation, la Division pouvant assurer la direction d'environ 70 de ces activités par an;
- c) cours d'artificier-surveillant;
- d) présentation de films et de diapositives portant sur la sécurité dans la manipulation des explosifs;

- e) activités du comité axées sur l'amélioration de la réglementation nationale et internationale.

En plus des permis, des autorisations et des inspections, les activités d'éducation, les échanges et la persuasion sont généralement, eux aussi, des mesures efficaces pour faire corriger les écarts à la règle, de sorte que les poursuites judiciaires en vertu de la Loi sont rarement nécessaires.

Liaison

Pour fonctionner efficacement, la Division recrute du personnel qualifié dans le domaine des explosifs; elle est donc en mesure de conseiller d'autres organismes gouvernementaux sur les questions relatives aux explosifs. La Division est reconnue comme faisant autorité en matière d'explosifs et de pièces pyrotechniques par les ministères des Transports, du Travail, et de la Consommation et des Corporations, par la Société canadienne des postes, le ministère de la Justice, la GRC et l'Office national des transports du Canada. De son côté, la Division entretient des relations avec l'industrie et avec le secteur militaire, au Canada comme à l'étranger, afin de profiter de la compétence de ces intervenants, le cas échéant.

TRAVAIL CANADA

Ingénieur principal de la sécurité dans les mines - T.E. Smales

Bureau situé à Sydney, en Nouvelle-Écosse

MANDAT

Le bureau de Travail Canada à Sydney demeure l'organisme de réglementation de la sécurité et de l'hygiène au travail pour les mines de charbon de la Société de développement du Cap-Breton.

INTRODUCTION

Il y a trois mines de charbon souterraines en exploitation qui emploient environ trois mille personnes et une mine en préparation dans laquelle deux galeries ont été creusées sur trois kilomètres en vue d'une mise en valeur initiale.

La Société possède une usine de préparation du charbon dans la banlieue de Sydney, un quai de chargement de navires dans le port de la ville et une voie ferrée.

Les graves difficultés économiques qui pèsent sur l'industrie de l'exploitation minière du charbon obligent à produire celui-ci à un coût très peu élevé. Les mines Prince et Phalen sont toutes deux des exploitations par longues tailles rabattantes et la mine Lingan procède actuellement à sa première taille rabattante dans le but d'en arriver dans l'avenir à une exploitation uniquement par rabattage.

On accède à toutes les mines par des fendues et toutes les mines se trouvent sous l'océan. Ces deux facteurs entraînent des problèmes particuliers à ce genre d'exploitation minière, même lorsque les conditions géologiques sont bonnes.

TAUX D'ACCIDENT

La fréquence et la gravité des accidents ont continué à diminuer en 1990, et cette caractéristique ne manque pas d'être satisfaisante étant donné que la tendance à la baisse s'est maintenue au cours des huit dernières années. Bon nombre des accidents font l'objet d'une enquête et d'un examen par les comités de sécurité et de santé. Des recommandations sont présentées et des personnes sont chargées de prendre les mesures nécessaires.

COMMISSION DE LA SÉCURITÉ DANS LES MINES DE CHARBON

La loi actuelle ne permettait pas à l'inspecteur en chef d'accorder des approbations ni des exemptions. En vertu du *Code canadien du travail*, on a créé une commission disposant des pouvoirs d'approbation et d'exemption. En outre, la commission jouit du pouvoir législatif de «désigner» une personne pour accorder les approbations en son nom.

La commission se réunit à intervalles irréguliers, examine les demandes d'exemption et passe en revue les approbations accordées par la personne désignée.

Le système fonctionne bien, mais ne permet pas d'accorder des exemptions rapidement.

La personne désignée est actuellement l'ingénieur principal de la sécurité dans les mines.

CAS DE CONDITIONS DANGEREUSES

Les principaux cas de conditions dangereuses signalés pendant l'année sont les suivants :

chaleur ou combustion lente causée par des pignons de convoyeur; et

étincelles d'électricité.

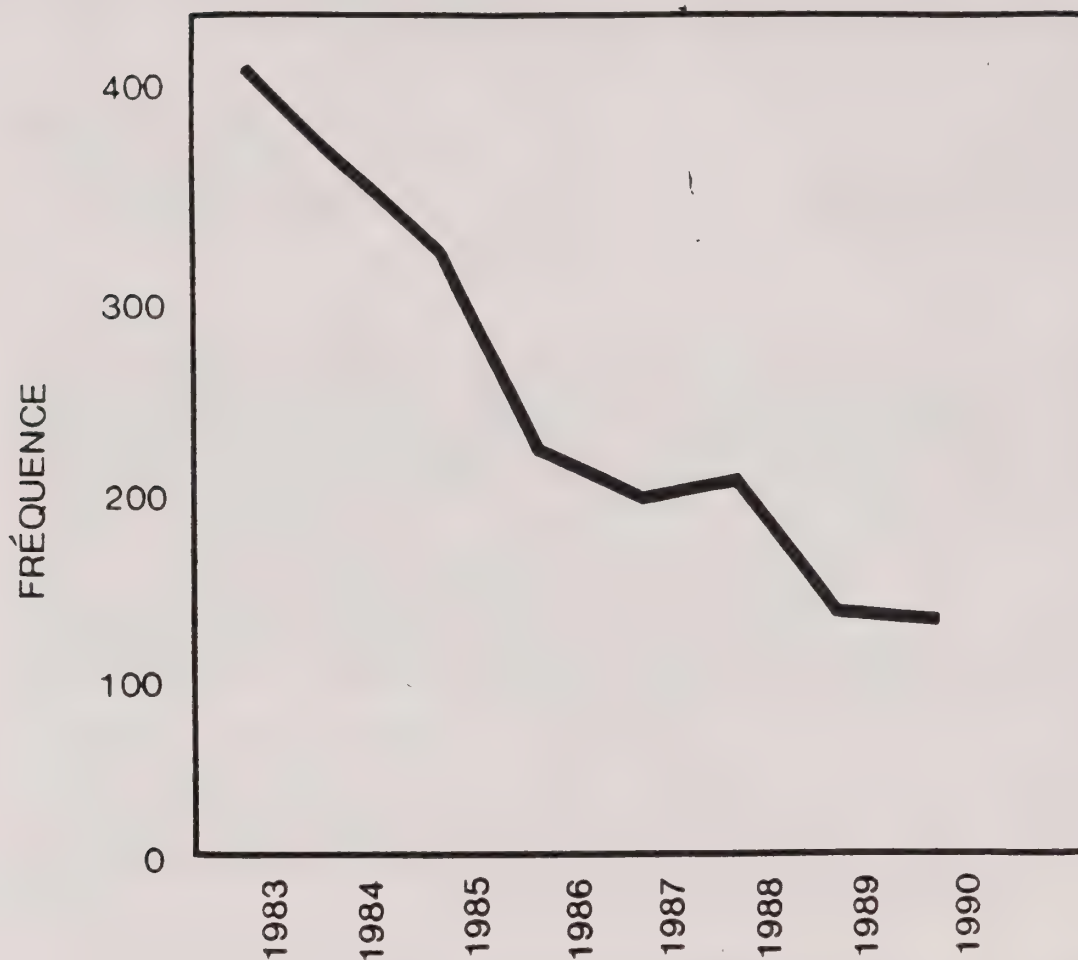
Un groupe de travail comprenant des représentants syndicaux, patronaux et de Travail Canada se réunit trimestriellement afin d'examiner les cas de chaleur élevée, d'incendies possibles ou d'explosions. Le groupe de travail est appuyé convenablement par les mesures prises par les syndicats et par la Société de développement du Cap-Breton.

On a signalé un incident d'inflammation par frottement lorsque du méthane a été allumé par les pointes d'une machine de traçage ayant frappé des strates contenant un haut pourcentage de silice. Tout le personnel de mise en valeur a été informé des soins particuliers qu'il faut prendre dans ces conditions.

PERSONNEL

Le personnel comprend un ingénieur minier, un ingénieur-électricien, un ingénieur spécialisé en environnement et deux agents de sécurité.

FREQUENCE DES ACCIDENTS - SDCB



$$\text{FRÉQUENCE} = \frac{\text{Nombre d'accidents avec perte de temps de travail}}{\text{Heures totales travaillées}} \times 10^6$$

ASSOCIATION DES INSPECTEURS EN CHEF DES MINES

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ASSOCIATION PARITAIRE POUR LA SANTÉ ET LA SÉCURITÉ DU TRAVAIL DU SECTEUR MINIER - SOMMAIRE DES ACTIVITÉS

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Directeur général - A.P.S.M. - Pierre Lapointe, ing.

L'Association paritaire pour la santé et la sécurité du travail du secteur minier (A.P.S.M.) est une association sectorielle qui regroupe notamment les représentants des associations d'employeurs et des associations syndicales du secteur minier québécois. Le secteur minier couvert comprend les mines de métaux, les mines d'amiante, les mines de fer, les mines de minéraux industriels, les entrepreneurs miniers, les foreurs au diamant et les prospecteurs. Ce secteur représente approximativement 15 000 travailleurs et travailleuses.

L'A.P.S.M. a pour mandat de fournir aux employeurs et aux travailleurs du secteur minier des services de formation, d'information, de recherche et de consultation en santé et sécurité du travail. Son principal objectif est d'amener tous ces intervenants à jouer un rôle en favorisant la collaboration patronale-syndicale en matière de prévention des accidents.

Ce sommaire présente un bilan des activités de notre association en 1990; ces activités nous ont permis de renforcer notre rôle dans la poursuite de notre mandat. Nos services de formation, d'information et de consultation ont pris de l'ampleur et la demande se maintient.

En 1990, la formation paritaire a été dominée par la création d'un cours d'inspection conjointe, qui a été dispensé à douze reprises. La forte demande témoigne du franc succès de ce cours. Il est en effet prévu que le cours sera donné chaque semaine pendant les trois prochains mois. Par ailleurs, le cours de base en santé et en sécurité et le cours d'enquête sur les accidents ont été donnés sur demande à six reprises. Ce dernier est présentement révisé car, selon les utilisateurs, la méthode proposée doit être allégée et être facilement adaptable aux besoins particuliers de chaque établissement.

Dans le domaine des activités d'information, l'A.P.S.M. a collaboré étroitement aux travaux du Comité d'enquête sur les accidents dans les mines. Elle a également dû reprendre la révision du projet de règlement touchant la santé et la sécurité dans les mines. L'A.P.S.M., qui avait obtenu le consensus patronal-syndical sur tous les articles de ce projet, a exprimé sa frustration face aux délais administratifs enregistrés dans le dossier. Il est même improbable que ce règlement entre en vigueur en 1991. En information, l'A.P.S.M. a poursuivi ses efforts pour recueillir et traiter des données statistiques sur les accidents. Les statistiques sur les accidents en 1990 sont les plus encourageantes depuis 1987. La fréquence des accidents a diminué régulièrement et leur gravité semble s'être stabilisée. Les rapports indiquent que 18,7 % des 12 950 travailleurs ont été indemnisés à la CSST (9,7 %) ou affectés temporairement à d'autres tâches (9 %). Selon les estimations, les accidents indemnisés en 1990 engendreront en moyenne 41,2 jours de travail perdus. Malheureusement, 7 travailleurs ont été victimes d'un accident mortel.

Deux conseillers ont été recrutés durant l'année. Messieurs Antoine Chevarie et François Gay sont chargés de la difficile tâche de promouvoir le paritarisme en milieu de travail. Leur riche expérience bonifie déjà les services de formation et de consultation de l'A.P.S.M. La persévérance des autres permanents de l'A.P.S.M., de ses administrateurs et de sa clientèle a permis d'obtenir des résultats encourageants en 1990.

**LA BASE NATIONALE DE DONNÉES SUR LES ACCIDENTS
DANS LES MINES (BNDAM)**

RAPPORT D'ÉTAPE

AVRIL 1991

CONTEXTE

Comme le soulignait le dernier rapport d'étape présenté à la réunion de l'Association des inspecteurs en chef des mines tenue en mai 1990, un prototype de base nationale de données sur les accidents dans les mines (BNDAM) est en place. Quatre administrations participent maintenant à la base, les Territoires du Nord-Ouest (T.N.-O.) s'y étant officiellement joint à la fin de l'automne 1990. Les données se rapportent aux accidents qui ont touché environ les deux tiers de la main-d'oeuvre minière du Canada au cours des quatre dernières années.

La BNDAM renferme maintenant plus de 23 000 fiches sur les accidents qui se sont produits au cours de la période de cinq ans allant de 1986 à 1990. Ces données permettent l'analyse statistique des accidents en général ou de façon plus détaillée.

La création de la BNDAM remonte à la mise sur pied d'un groupe de travail par l'Association des inspecteurs en chef des mines au début des années 80. Ce projet est né de la volonté de cette association de recueillir au niveau national des données descriptives des accidents. Énergie, Mines et Ressources Canada a accepté de coordonner le projet avec la collaboration des autorités minières canadiennes.

SITUATION RÉCENTE

1. Les données de 1990 des Territoires du Nord-Ouest, de la Colombie-Britannique (C.-B.), de l'Ontario et du Québec ont été reçues et intégrées à la BNDAM. Dans le cas de l'Ontario, les données de l'année précédente ont également été mises à jour.

2. Un module de conversion a été mis au point pour convertir les données recueillies par MINACC de façon à pouvoir les entrer dans la BNDAM et à pouvoir inclure les données de 1990 des T.N.-O. dans la BNDAM. De plus, d'autres modifications ont été apportées aux applications de la BNDAM pour tenir compte de l'entrée de ce territoire.
3. Les données nouvellement converties sont en cours de vérification et des corrections de codage ainsi que d'autres rajustements aux fiches devront être effectués sous peu, en collaboration avec l'administration concernée et les autres membres du groupe de travail.
4. La documentation sur le système (conversion et programmation) a été mise à jour et terminée. En outre, la préparation d'un guide de l'utilisateur a été entreprise plus tôt cette année et elle est presque achevée.
5. En ce qui concerne la bilinguisation de la BNDAM, les menus ont été traduits et les expressions françaises sont en train d'être incorporées au système.
6. La nouvelle structure de codage de l'APAMO a été étudiée et ses répercussions sur la BNDAM à titre de dénominateur commun pour le pays ont fait l'objet d'un examen préliminaire. Il reste un certain nombre de questions techniques qui devront être traitées par le groupe de travail.
7. La deuxième réunion du groupe s'est déroulée à Victoria (C.-B.) en octobre 1990. Y ont assisté des représentants des inspecteurs en chef des mines des T.N.-O. et de la C.-B. et de l'Association pour la prévention des accidents dans les mines ontariennes. Le procès-verbal de la réunion du groupe ainsi que le plan d'action convenu ont été envoyés aux inspecteurs en chef.

La première réunion du groupe de travail s'était tenue le 12 décembre 1989 aux installations d'EMR à Ottawa. L'idée de créer un tel groupe de travail avait été discutée et approuvée à la réunion d'août 1989 de l'Association des inspecteurs en chef. Le groupe est vu comme un moyen de trouver des solutions à un certain nombre de questions techniques (soit la structure de la

base de données et le codage des champs) concernant la mise au point de la BNDAM en tant que base de données pancanadienne.

8. Un certain nombre d'analyses ont été réalisées pour être présentées aux inspecteurs en chef à leur réunion des 27 et 28 avril 1991 et publiées dans leur rapport annuel de 1990. D'autres analyses ont été effectuées à la suite de quelques demandes de renseignements.

SITUATION ACTUELLE

A - PORTÉE DE LA BASE DE DONNÉES

La BNDAM contient maintenant 23 631 fiches de situations qui se sont produites dans les quatre administrations participantes entre 1986 et 1990 dans le cas de la Colombie-Britannique et de l'Ontario, entre 1987 et 1990 pour le Québec et en 1990 pour les Territoires du Nord-Ouest.

De ce nombre, 101 (0,4 %) sont des accidents mortels, 8 339 (35 %) des blessures avec perte de temps, 14 853 (63 %) des blessures nécessitant des soins médicaux et 338 (1 %) des situations dangereuses.

En examinant les 19 465 fiches signalées par la C.-B., l'Ontario et le Québec au cours des quatre années de participation des trois provinces, soit à partir de 1987, on constate ce qui suit.

- (a) Des 90 accidents mortels intégrés à la BNDAM pendant cette période, 26 % ont eu lieu au Québec, 51 % en Ontario et 23 % en Colombie-Britannique. Il est intéressant de remarquer que cette répartition se rapproche de la proportion relative des heures travaillées dans l'industrie minière pour chacune de ces provinces. Selon le recensement des mines de 1988, au chapitre des heures-personnes payées dans les mines de métaux et de non-métaux et les sablières et carrières (sauf pour le Québec dans ce dernier cas), la part relative s'élevait à 28 % pour le Québec, 56 % pour l'Ontario et 16 % pour la Colombie-Britannique.

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- (b) La répartition des 7 500 cas de blessures avec perte de temps codés dans la BNDAM pour les quatre années est la suivante : 70 % pour le Québec, 26 % pour l'Ontario et 4 % pour la Colombie-Britannique. Cette répartition inégale s'explique en grande partie par les différences dans la portée de l'échantillonnage d'une province à l'autre : en Colombie-Britannique, les accidents avec perte de temps sont signalés pour seulement quatre mines alors qu'en Ontario la proportion se chiffre à quelque 70 % et qu'elle est de près de 100 % au Québec (à l'exclusion des carrières de sable et de gravier).
- (c) En ce qui concerne les blessures nécessitant des soins médicaux, 99 % ont été signalées par l'Ontario, car la C.-B. est la seule autre province à les signaler, et ce pour quatre mines seulement.
- (d) Enfin, 100 % des entrées sur les situations dangereuses proviennent de la Colombie-Britannique, étant donné qu'elle est la seule à signaler cette catégorie d'incident.

Si l'on se penche sur les données de 1990 et que l'on tient compte des blessures signalées par les Territoires du Nord-Ouest, la répartition des accidents mortels est la suivante : 31 % pour le Québec, 42 % pour l'Ontario, 21 % pour la Colombie-Britannique et 5 % pour les Territoires du Nord-Ouest. La répartition des heures travaillées entre ces quatre administrations diffère légèrement, le Québec en ayant 27 %, l'Ontario 54 %, la C.-B. 15 % et les T.N.-O. 4 %. Dans le cas des blessures avec perte de temps, les proportions du Québec et des T.N.-O. sont surestimées, s'élevant respectivement à 67 % et à 10 %, alors que celles de l'Ontario et de la C.-B. s'établissent à 19 % et à 4 % respectivement.

Ces facteurs doivent être pris en considération lors de l'interprétation des analyses produites à partir de la base de données.

B - TRAVAUX EN COURS

1. Rapports types : Des membres du groupe de travail ont exprimé leur opinion au sujet d'une liste proposée de rapports

types destinés aux inspecteurs en chef. Cependant, il convient de poursuivre les discussions pour atteindre un consensus et recommander une proposition détaillée.

2. Nouvelle structure de codage de l'APAMO : Comme il est mentionné ci-dessus, une évaluation préliminaire des répercussions de la nouvelle structure de codage de l'APAMO a été réalisée. Parmi les questions techniques qui devront être étudiées par le groupe de travail, notons : a) l'identification des modifications mineures de structure (codage) par rapport aux changements majeurs (champs), et b) l'analyse de la comparabilité des données entre les administrations. Il s'agit de déterminer la meilleure façon de convertir les données de 1991 de l'APAMO à la BNDAM tout en maintenant le rôle de dénominateur commun de la BNDAM, nécessaire pour s'assurer d'analyses cohérentes à l'échelle nationale.
3. Communications avec les administrations : Maintenir des relations étroites avec les administrations intéressées à se joindre au projet (p. ex. adopter MINACC).

SITUATION FUTURE

Voici d'autres éléments qui s'avéreront importants pour assurer une bonne mise en oeuvre de la BNDAM :

- (a) poursuivre les activités du groupe de travail au moyen de communications officielles et informelles (y compris des réunions);

- (b) établir conjointement un plan d'action pour le groupe de travail en vue de régler un certain nombre de questions, dont :
- i) uniformiser les définitions;
 - ii) envisager les possibilités d'intégrer à la BNDAM les modifications apportées à la structure de codage de l'APAMO pour assurer au maximum l'uniformité de codage des blessures à la grandeur du pays (c.-à-d. deux possibilités de base ayant chacune des répercussions sur la comparabilité des données de la BNDAM avec celles de l'A.P.S.M. et de MINACC);
 - iii) discuter de la conversion à la BNDAM du codage élargi de MINACC pour le codage des champs «activité» et «tâche»;
 - iv) communiquer aux membres du groupe de travail des renseignements à jour sur l'état de MINACC et sur sa mise en oeuvre en C.-B.;
 - v) entreprendre des travaux analytiques sur les questions statistiques et méthodologiques liées à l'incorporation des données sur la «population à risque» dans la BNDAM; et
 - vi) examiner les possibilités de coder un champ concernant les jours de travail perdus.

ANNEXE 1

FRÉQUENCE DES ACCIDENTS

AVEC PERTE DE TEMPS

1990

(sur la base de 200 000 heures)

CANADA

FRÉQUENCE DES ACCIDENTS AVEC PERTE DE TEMPS - SOUS TERRE

NOM DE LA SOCIÉTÉ	HEURES TRAVAILLÉES	FRÉQUENCE
Minerals Lac* - Bousquet no 1	329 387	35,8
no 2	192 743	24,9
Giant (T.N.-O.)	689 109	18,0
Dickenson	770 314	4,7
Westrock Ind. Ltd.	50 489	4,0
Hudson Bay - Trout Lake	221 311	12,85
Hudson Bay - Ruttan Mine	847 889	12,97
Blackdome ¹	143 555	26,47
Nerco	722 054	21,8
Teck ¹	62 206	25,72
Minerais Lac*	120 747	8,3
Q.I.T.-Fer & Titane Inc.*	687 172	14,6
Mines Aurizon - Géant dormant*	244 365	29,5
Ressources Audrey*	312 315	19,2
Hudson Bay - Flin Flon Mine	177 386	9,01
Minerals Lac* - Terrain aurifère	100 894	21,8
Cambior Inc.* - Chimo	184 753	6,5
Belmoral* - Ferderber	508 220	5,1
Mines d'Or Lac Bachelor Inc.*	18 632	0
Muscocho - Magino Mine	259 434	4,6
Westmin	1 119 391	11,97
Mines Agnico Eagle Limitée*	458 211	6,1
Muscocho - Magnacon Mine	207 008	8,7
Nanisivik	487 473	8,2
Mine Doyon*	929 454	12,7
Hudson Bay - Namew Lake	220 329	6,35
Cheni	300 488	17,97
Golden Bear	226 722	13,23
Treminco	105 936	11,4
Les Mines Abcourt Inc.*	15 069	26,5
Renabie Gold Mines Ltd.	393 196	7,1

* Pour la plupart de ces mines, les données ne sont pas réparties entre les activités souterraines et les activités de surface. Les chiffres portent donc sur l'ensemble de l'exploitation.

¹ Fermée pendant 1990

FRÉQUENCE DES ACCIDENTS AVEC PERTE DE TEMPS - SOUS TERRE

NOM DE LA SOCIÉTÉ	HEURES TRAVAILLÉES	FRÉQUENCE
Les Mines Casa Berardi*	298 955	0,7
Brunswick Mining	1 750 195	8,6
Timminco Metals	443 398	5,0
Hudson Bay - Stall Mine	176 489	11,3
Sullivan	640 744	14,05
Luzenac Inc.	100 578	0
Ressource minière Rouyn*	126 102	14,3
Holt - McDermott Mine	442 427	6,8
Canada Talc Ltd.	75 085	0
Aurora Quarrying Ltd.	3 430	0
Minnova - Lac Shortt*	297 184	0,7
Cambior - Lucien C. Béliveau	165 180	2,4
Inco/Thompson - T-1, T-3, Birchtree Man. Division	1 114 758	1,43
Falconbridge Gold Corp.	281 119	2,1
Hudson Bay - Rod Mine	75 075	5,32
Placer Dome Inc. - Detour Lake	660 129	6,1
Les Mines d'Or Kiena Limitée*	401 172	3,0
East West Caribou Mining	168 158	2,4
Placer Dome Inc. - Dome Mine	764 419	1,6
Canamax - Bell Creek	232 453	10,3
Minnova Inc. - Winston Lake	310 753	1,3
Teck Corp. - Division Niobec*	318 815	5,0
Agnico Eagle - Donald J. Laronde*	479 892	4,6
Canamax - Kremzar	178 269	11,2
Sifto Canada Inc.	605 194	6,6
Minnova - Opemiska*	442 942	5,9
Giant Yellowknife	834 368	1,9
Golden Patricia Mine	465 517	4,3
Colomac	606 875	2,6
Lac Minerals-Macassa	590 311	2,4
Noranda - Mine Gaspé*	1 057 529	3,4
Polaris	726 231	3,8

* Pour la plupart de ces mines, les données ne sont pas réparties entre les activités souterraines et les activités de surface. Les chiffres portent donc sur l'ensemble de l'exploitation.

FRÉQUENCE DES ACCIDENTS AVEC PERTE DE TEMPS - SOUS TERRE

NOM DE LA SOCIÉTÉ	HEURES TRAVAILLÉES	FRÉQUENCE
Denison Mines Ltd.	2 404 201	4,7
Mattabi Lyon Lake	477 140	4,2
Minnova - Lac Dufault*	388 582	4,6
Teck-Corona - David Bell Mine	467 576	3,8
Placer Dome Inc. - Dona Lake	222 548	5,4
Les Mines Sigma Limitée*	774 353	2,6
Noranda Geco	892 402	1,6
Rio Algom - Quirke	1 271 904	5,0
Eastmaque Gold Mines Ltd.	98 386	4,3
Norand - Matagami*	586 081	2,7
Cambior Inc. (Mouska)*	112 876	5,3
Corona	125 400	0
Falconbridge Ltd.	4 501 394	2,1
Timmins Nickel Inc.	111 826	14,3
Murray Brook Resources Inc.	72 868	8,2
Tantalum Mining Corp. of Canada	222 252	15,30
Lupin	908 767	3,4
Agnico-Eagle Mines Ltd.	47 825	4,2
Inco - Ontario Division	14 320 420	2,3
Cameco - Key Lake	596 400	1,3
Domtar - Construction	226 933	5,3
Falconbridge - Kidd Div. - Met. Site	3 447 942	1,1
Falconbridge - Kidd Div. - Mine Site	2 124 385	1,5
Rio Algom - Panel-	800 375	2,7
Hemlo Gold Mines Inc.	721 729	0,6
The Canadian Salt Co. Ltd.	306 124	0
Amok/Cluff	258 800	0
Placer Dome Inc. - Campbell Mine	961 439	2,5
Williams Mine Operating Corp.	1 278 272	0,9
Cigar Lake	100 100	0
Hedman Resources Ltd.	15 914	0
Cameco - Rabbit Lake	293 400	0
Canadian Gypsum Company	134 885	0

* Pour la plupart de ces mines, les données ne sont pas réparties entre les activités souterraines et les activités de surface. Les chiffres portent donc sur l'ensemble de l'exploitation.

FRÉQUENCE DES ACCIDENTS AVEC PERTE DE TEMPS - SOUS TERRE

NOM DE LA SOCIÉTÉ	HEURES TRAVAILLÉES	FRÉQUENCE
Rio Algom - Stanleigh	815 216	3,4
St. Andrew Goldfields	93 435	0
Barrick* - Canflo	243 766	0
Cambior Inc.* (Yvan Vezina)	103 380	0
Heath Steel Mines Ltd.	564 152	0,4
Lac Minerals Ltd. (N.-B.)	4 818	0
Hudson Bay - Callinan Mine	147 588	17,61
Pine Point	19 605	0

* Pour la plupart de ces mines, les données ne sont pas réparties entre les activités souterraines et les activités de surface. Les chiffres portent donc sur l'ensemble de l'exploitation.

FRÉQUENCE DES ACCIDENTS AVEC PERTE DE TEMPS - EN SURFACE

NOM DE LA SOCIÉTÉ	HEURES TRAVAILLÉES	FRÉQUENCE
Lab - Operation Bell	673 620	25,2
Lab - Operation Black Lake	906 616	18,8
Lab - Operation B.C.	733 958	13,4
Q.I.T. - Fer & Titane Inc.	687 172	14,6
Westroc	47 296	0
J.M. Asbestos Inc.	1 006 996	18,5
Algoma Ore	398 046	5,0
Québec Cartier - Mont Wright	2 528 191	13,2
Sifto Salt	162 600	6,1
Québec Cartier - Transport	1 334 179	9,0
Holnam West	101 089	13,85
Similco	688 186	13,95
Afton	411 358	7,78
Westroc Industries Limited	4 080	0
Chisel Mine Open Pit	39 946	15,04
Unimin Canada Ltd. - Silica	127 009	3,1
Compagnie minière IOC	236 071	4,2
Minnova	185 607	0
Island Copper	1 174 228	5,45
Mines Wabush	810 263	4,2
Québec Cartier - Bouletage	732 347	4,1
Cassiar	686 533	6,70
Brenda ¹	395 683	3,03
Cominco	657 200	2,1
Sherman Mine ¹	163 289	0
Alcan	4 009 898	4,34
Nickel Plate	361 520	1,11
Unimin Canada Ltd. - Nephton	189 558	3,2
Highland Valley	2 354 949	1,87
Unimin Canada Ltd. - Blue Mountain	168 929	5,9
Bell Copper	636 661	0,94
PCS Cory	237 200	0,8
Inco - Thompson - Open Pit	212 288	0,94
PCS Lanigan	452 000	0,4

¹ Fermée pendant 1990

FRÉQUENCE DES ACCIDENTS AVEC PERTE DE TEMPS - EN SURFACE

NOM DE LA SOCIÉTÉ	HEURES TRAVAILLÉES	FRÉQUENCE
Gibraltar	678 736	3,83
PCS Allan	479 400	0,4
Adams Mine ¹	155 828	8,9
Endako	472 269	0,42
Central Canada Potash	730 500	0,5
Kalium	333 600	0
Equity Silver	368 865	0,54
I.M.C. - K1	700 400	0
Westmin-Premier	354 483	0
Lab - Siège social	199 080	0
PCS Rocanville	501 200	0,4
I.M.C. - K2	1 014 300	1,2
Inco - Thompson - Mill	2 316 129	0,77
Noranda - Horne - Smelter	2 022 673	11,3
Les Mines Camchib Inc.	169 100	5,9
Cambior Inc. - Pierre Beauchenin	276 871	5,1
Les Mines Selbaie	1 214 153	1,0
Brunswick Smelting	709 011	5,1

¹ Fermée pendant 1990

CHARBON/POTASSE

NOM DE LA SOCIÉTÉ	HEURES TRAVAILLÉES	FRÉQUENCE
Brinco Coal Corporation	135 825	17,67
Prairie Coal :		
Poplar River	313 200	10,8
Costello	106 200	5,6
N.B. Coal Ltd.	401 022	4,5
Greenhills	1 227 088	8,15
Fording	1 789 503	8,05
E.C.C. Boundary Dam	146 900	5,4
Utility	166 700	5,9
Denison-Potacan Potash	959 087	7,7
Westar-Balmer	2 716 392	8,10
Byron Creek	577 775	7,96
N.B. Coal Truckers	54 432	0
Crows Nest	995 440	3,42
Bullmoose	688 094	1,74
E.C.C. Beinfait	167 200	2,4
Potash Company of America	669 393	2,4
Potash Company of America (Sask.)	234 600	0,8
Sussex Security & Dionne	20 922	0
Cameco - Jasper	72 000	2,8
Claude Resources	28 200	0
FM - Asask	28 600	0
FM - Cabri	43 500	9,2
Millar Western	29 100	13,7
Ormiston Mining	35 400	5,6
SM - Chaplin	79 600	2,5
SM - Ingebrigt	64 400	3,1
Cavern Wells	32 500	6,1
Altus	15 500	0

ENTREPRENEURS/FORAGE AU DIAMANT

NOM DE LA SOCIÉTÉ	HEURES TRAVAILLÉES	FRÉQUENCE
Forage St-Lambert Ltée	16 363	12,2
Dominik (1981)	38 360	26,1
Forage moderne (1985) Inc.	57 794	34,6
Advance Diamond Drilling Ltd. ¹	23 372	42,8
Forages Garant & Frères Inc.	142 035	11,3
Forage B.F.M.	37 937	5,3
Ram Raising Ltd. - Alimak	14 807	0
Longyear Canada Inc.	16 801	23,81
Longyear Canada Inc. (Ont.)	199 853	16,0
Smook Bros.	87 116	4,59
Fraser River Pile & Dredge	43 766	13,71
Ross-Finlay Limitée	272 140	4,4
Heath & Sherwood (1986)	188 430	6,4
Forage à diamant Phillepon	46 415	12,9
Boart Canada Inc.	124 121	9,7
Mid West Diamond Drilling	217 400	12,88
Mid West Diamond Drilling (Ont.)	79 056	5,1
Thyssen	383 900	6,8
N. Morissette Canada Inc. (Québec)	168 371	13,1
MacIsaac Mining & Tunnelling Co.	63 919	21,91
Tonto	157 200	10,1
N. Morissette Canada Inc. (Ont.)	313 416	11,5
MacIsaac Mining & Tunnelling (Québec)	8 873	0
MacIsaac Mining & Tunnelling (Ont.)	1 424 132	8,0
Wescore Drilling Limited	41 923	9,54
Barron	9 653	0
Bradley Frères Limitée	204 411	4,9
BLM Mining Services Ltd.	49 406	8,1
Mining Corp. of Canada Ltd.	36 409	0
Bradley Bros. Ltd.	149 791	9,3
Ram Raising Ltd.	26 647	0
Ram Raising Ltd.	7 365	0
Ram Raising Ltd. (Ont.)	164 553	4,9

¹ Fermée pendant 1990

ENTREPRENEURS/FORAGE AU DIAMANT

NOM DE LA SOCIÉTÉ	HEURES TRAVAILLÉES	FRÉQUENCE
Catalytic Mtce.	176 800	2,3
Ross-Finlay	77 213	0
Aurora Quarrying (Man.)	235 790	0,85
J.S. Redpath Ltd.	759 999	1,6
J.S. Redpath Ltd. (Québec)	28 662	0
Aurora - Quarrying	9 000	0
J.S. Redpath (N.-B.)	157 100	4,1
J.S. Redpath Limited (Man.)	89 112	8,99
St-Lambert Drilling	41 167	4,9
Aurora Quarrying (Ont.)	174 048	2,3
Canadian Mine Development	149 399	8,4
Canadian Mine Development (Ont.)	66 306	0
Dynatec Mining Ltd.	327 350	3,1
Mindecon Inc.	146 650	0
Manroc Developments Inc.	27 999	0
Alex MacIntyre & Associates Ltd.	109 078	0
Alex MacIntyre & Associates Ltd. (Ont.)	77 380	7,8
Graham Mining Ltd.	163 996	0
Atomic Energy Research	132 556	1,51

ANNEXE 2

BASE NATIONALE DE DONNÉES

SUR LES ACCIDENTS DANS LES MINES

ACCIDENTS MORTELS AU CANADA

1978-1990

ANNEXE 3

BASE NATIONALE DE DONNÉES

SUR LES ACCIDENTS DANS LES MINES

ACCIDENTS MORTELS ET LÉSIONS AVEC TEMPS PERDU

GRAPHIQUES

NOTE:

- (1) Les accidents mortels survenus à la SDCB et dans les Territoires du Nord-Ouest en 1978 n'ont pas été déclarés.
- (2) Les accidents mortels survenus lors d'un déplacement entre la résidence et le lieu de travail ne sont pas compris dans les totaux.
- (3) Comprend deux accidents mortels dans les Territoires du Nord-Ouest, dont l'un est survenu sur une route (frappé par un camion) et l'autre sur un chemin de glace (niveleuse s'est enlisée sous la glace).
- (4) Comprend un décès par arrêt cardiaque attribuable à un travail intense à la SDCB.
- (5) Comprend un accident mortel dans les Territoires du Nord-Ouest survenu sur une route.
- (6) Comprend aussi le décès d'un garde de sécurité à la SDCB qui fut abattu alors qu'il tentait d'appréhender un malfaiteur.
- (7) Comprend un accident sur une autoroute et un prospecteur mort gelé en Ontario. Ces deux accidents mortels ne sont pas compris dans les totaux.
- (8) Comprend un citoyen blessé par un éclat de pierre projeté par un dynamitage ainsi qu'une noyade en Ontario. Ces accidents mortels ne sont pas inclus dans les totaux.
- (9) Comprend un travailleur autonome à une installation de surface abandonnée, un travailleur tué alors qu'il abattait des arbres, un accident de la route ainsi qu'un citoyen tué alors qu'il traversait la voie ferrée.
- (10) Il s'agit d'un accident mortel en Saskatchewan survenu à une installation d'extraction par dissolution.
- (11) Tous les accidents mortels de cette catégorie sont exclus des totaux.

SOURCE:

Accidents mortels dans les mines signalés par les inspecteurs en chef des mines ou l'autorité compétente correspondante de chaque administration au Canada. Compilé par EMR en janvier 1991.

ACCIDENTS MORTELS DANS LES MINES - NOUVELLE-ÉCOSSE

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ					AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION		
1978	2	0	2	0	0	0	0	-	2
1979	0	0	0	0	0	0	0	-	0
1980	1	1	1	0	1	0	0	-	2
1981	2	0	0	0	0	2	0	-	2
1982	0	0	0	0	0	0	0	-	0
1983	0	0	0	0	0	0	0	-	0
1984	0	0	0	0	0	0	0	-	0
1985	0	0	0	0	0	0	0	-	0
1986	0	0	0	0	0	0	0	-	0
1987	1	0	0	0	0	1	0	-	1
1988	1	0	0	0	0	1	0	-	1
1989	0	0	0	0	0	0	0	-	0
1990	0	0	0	0	0	0	0	-	0
TOTAL	7	1	3	0	1	4	0	-	8

NOTE: Les accidents mortels survenus à la Société de développement du Cap-Breton (SDCB) ne sont pas comptabilisés dans ce tableau puisque celle-ci relève de la compétence fédérale.

- Non déclaré.

ACCIDENTS MORTELS DANS LES MINES AU CANADA

1978 – 1990

Secteur de la politique minérale
Énergie, Mines et Ressources

Mars 1991

ACCIDENTS MORTELS DANS LES MINES - NOUVEAU-BRUNSWICK

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ				AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION	
1978	0	0	0	0	0	-	-	0
1979	0	0	0	0	0	-	-	0
1980	2	0	1	0	1	-	-	2
1981	0	1	0	0	1	-	-	1
1982	0	1	0	0	1	-	-	1
1983	1	0	0	1	0	-	-	1
1984	2	0	2	0	0	-	-	2
1985	1	1	2	0	0	-	-	2
1986	1	1	2	0	0	-	-	2
1987	1	0	1	0	0	-	-	1
1988	2	0	2	0	0	-	-	2
1989	2	0	2	0	0	-	-	2
1990	0	0	0	0	0	-	-	0
TOTAL	12	4	12	1	3	-	-	16

NOTE: Les accidents mortels survenus dans le secteur des carrières (sable et gravier) relevant de l'administration générale de la sécurité ainsi que les décès par arrêt cardiaque sont exclus.
- Non déclaré.

ACCIDENTS MORTELS DANS LES MINES - ONTARIO

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ					AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION		
1978	14	3	8	0	4	5	0	0	17
1979	8	1	5	0	2	2	0	0	9
1980	15	5	12	0	4	4	0	0	20
1981	11	3	9	0	2	3	0	0	14
1982	8	1	5	0	2	2	0	0	9
1983	6	2	6	0	1	1	0	0	8
1984	12	4	13	0	1	2	0	0	16
1985	5	5	8	0	2	0	0	0	10
1986	10	2	9	0	2	1	0	2	12
1987	16	7	15	1	3	3	1	0	23
1988	11	6	7	0	7	1	2	2	17
1989	8	3	8	0	2	0	1	4	11
1990	7	2	7	0	2	0	0	0	9
TOTAL	131	44	112	1	34	24	4	8(1)	175

NOTE: Comprend les accidents mortels survenus dans une mine d'uranium qui sont de nature conventionnelle en matière de santé et sécurité.

(1) Ces accidents mortels ne relèvent pas de la compétence des organismes de réglementation et sont exclus des totaux.

ANNEXE 3

BASE NATIONALE DE DONNÉES

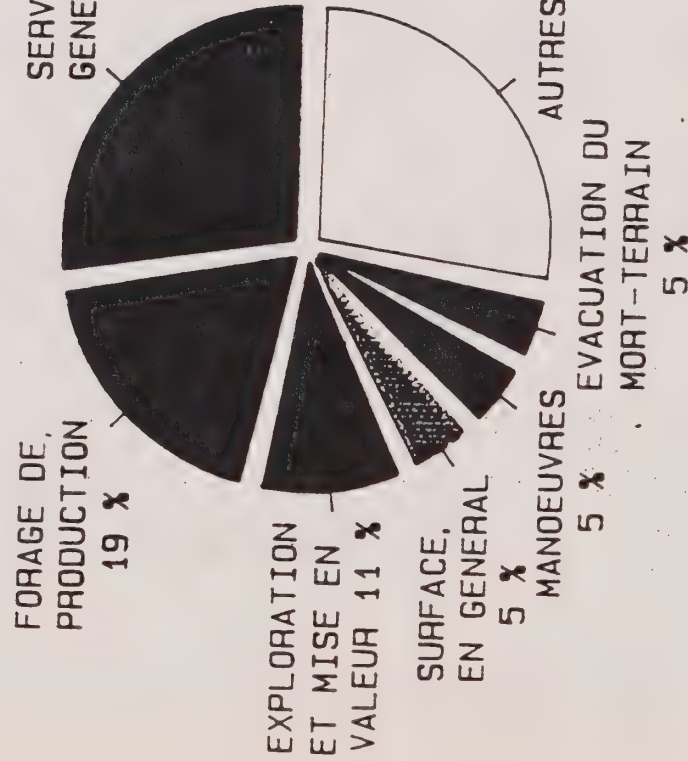
SUR LES ACCIDENTS DANS LES MINES

ACCIDENTS MORTELS ET LÉSIONS AVEC TEMPS PERDU

GRAPHIQUES

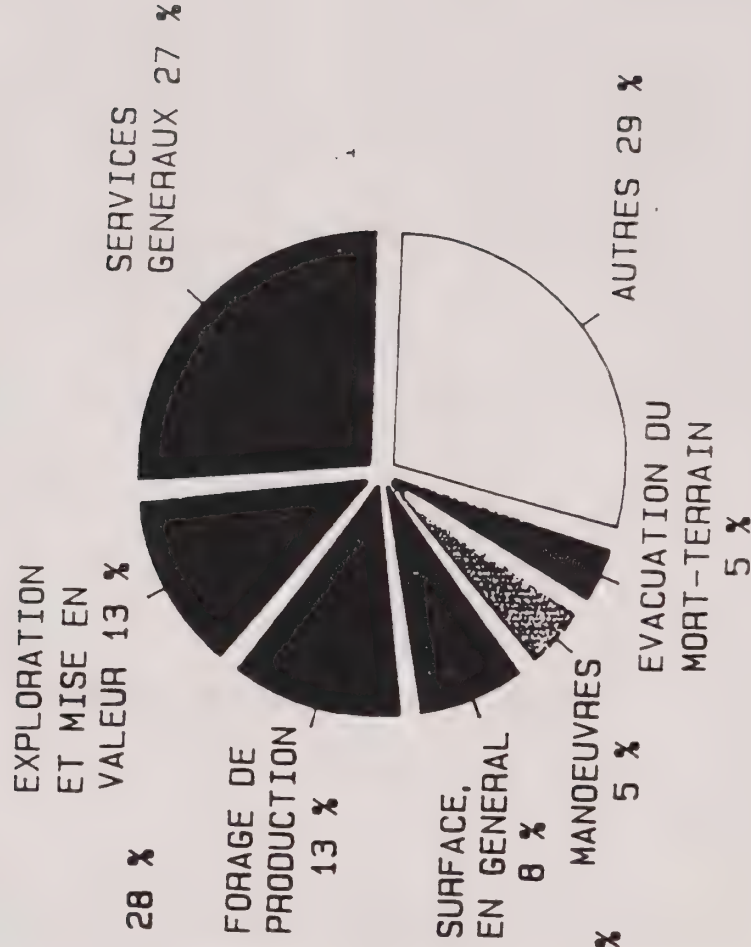
LESIONS AVEC TEMPS PERDU SELON LA PROFESSION

1986-1989



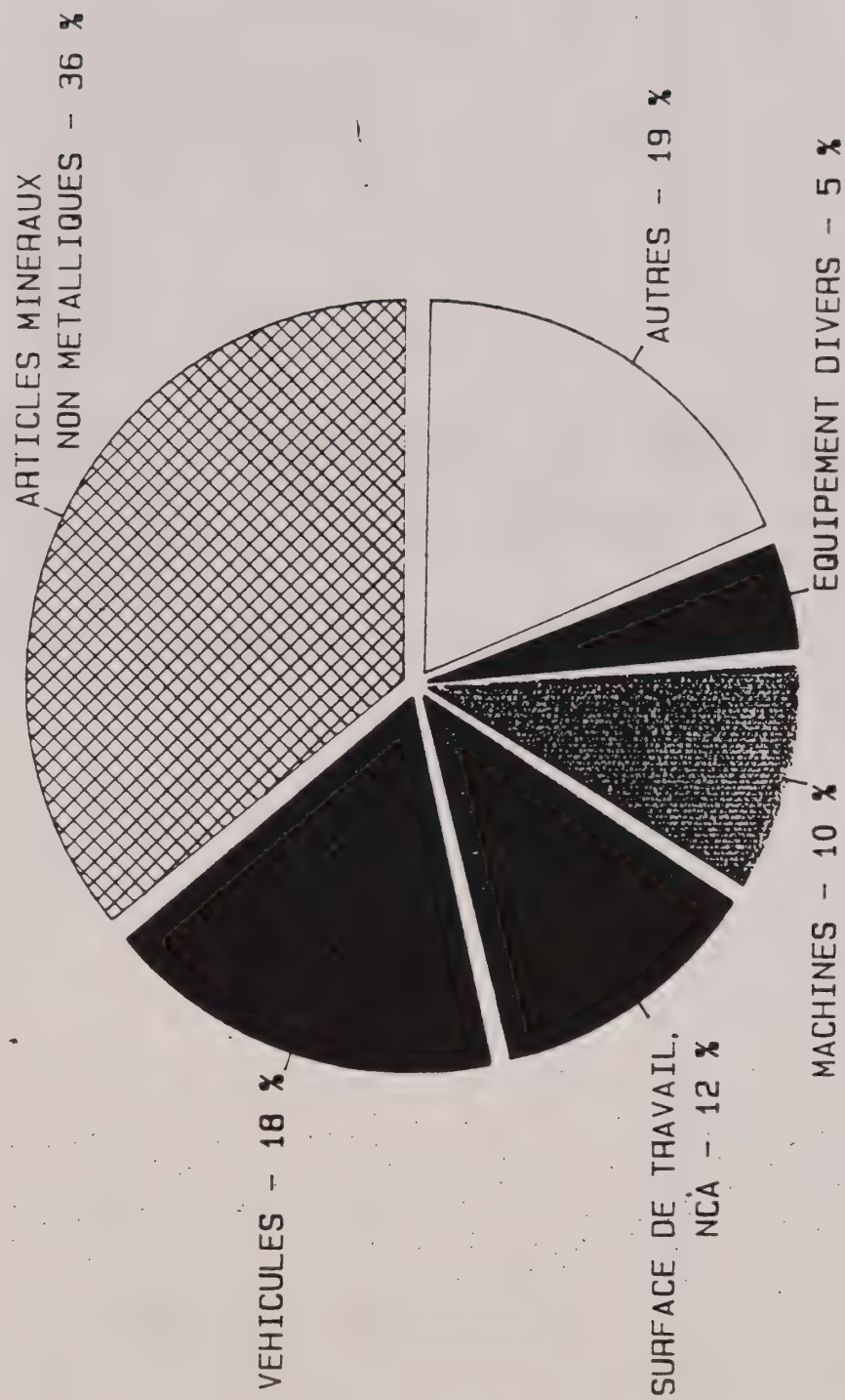
6 409 ENTREES

1990



1 862 ENTREES

LESIONS MORTELLES SELON LA SOURCE DE L'ACCIDENT 1986-1990



97 ENTREES

Source : Base nationale de données sur les accidents dans les mines.

ACCIDENTS MORTELS DANS LES MINES AU CANADA

1978 – 1990

Secteur de la politique minérale
Énergie, Mines et Ressources

Mars 1991

ACCIDENTS MORTELS DANS LES MINES - TERRE-NEUVE

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ					AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION		
1978	1	0	0	1	-	-	-	-	1
1979	1	0	1	0	-	-	-	-	1
1980	0	0	0	0	-	-	-	-	0
1981	1	0	1	0	-	-	-	-	1
1982	0	1	0	1	-	-	-	-	1
1983	0	0	0	0	-	-	-	-	0
1984	1	0	0	1	-	-	-	-	1
1985	1	0	0	1	-	-	-	-	1
1986	0	0	0	0	-	-	-	-	0
1987	0	1	0	1	-	-	-	-	1
1988	1	0	0	1	-	-	-	-	1
1989	1	0	0	1	-	-	-	-	1
1990	2	0	2	0	-	-	-	-	2
TOTAL	9	2	4	7	-	-	-	-	11

NOTE: Les accidents mortels attribuables à des causes naturelles ainsi que ceux survenus hors d'un chantier minier, tels les accidents automobiles, sont exclus.
 - Non déclaré.

ACCIDENTS MORTELS DANS LES MINES - NOUVELLE-ÉCOSSE

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ					AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION		
1978	2	0	2	0	0	0	0	-	2
1979	0	0	0	0	0	0	0	-	0
1980	1	1	1	0	1	0	0	-	2
1981	2	0	0	0	0	2	0	-	2
1982	0	0	0	0	0	0	0	-	0
1983	0	0	0	0	0	0	0	-	0
1984	0	0	0	0	0	0	0	-	0
1985	0	0	0	0	0	0	0	-	0
1986	0	0	0	0	0	0	0	-	0
1987	1	0	0	0	0	1	0	-	1
1988	1	0	0	0	0	1	0	-	1
1989	0	0	0	0	0	0	0	-	0
1990	0	0	0	0	0	0	0	-	0
TOTAL	7	1	3	0	1	4	0	-	8

NOTE: Les accidents mortels survenus à la Société de développement du Cap-Breton (SDCB) ne sont pas comptabilisés dans ce tableau puisque celle-ci relève de la compétence fédérale.

- Non déclaré.

ACCIDENTS MORTELS DANS LES MINES - SOCIÉTÉ DE DÉVELOPPEMENT DU CAP-BRETON

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ				AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLA- TIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION	
1978	-	-	-	-	-	-	-	-
1979	12	0	12	-	0	-	-	12
1980	0	0	0	-	0	-	-	0
1981	0	0	0	-	0	-	-	0
1982	1	0	1	-	0	-	-	1
1983	2	0	0	-	2	-	-	2
1984	2	0	2(1)	-	0	-	-	2
1985	2	0	1	-	1(2)	-	-	2
1986	0	0	0	-	0	-	-	0
1987	0	0	0	-	0	-	-	0
1988	1	0	0	-	1	-	-	1
1989	0	0	0	-	0	-	-	0
1990	0	0	0	-	0	-	-	0
TOTAL	20	0	16	-	4	-	-	20

NOTE: (1) Un des deux accidents mortels signalés fut un arrêt cardiaque attribuable à un travail intense.

(2) Un garde de sécurité tentant d'appréhender un malfaiteur fut abattu.

- Non déclaré.

ACCIDENTS MORTELS DANS LES MINES - NOUVEAU-BRUNSWICK

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ					AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION		
1978	0	0	0	0	0	-	-	0	0
1979	0	0	0	0	0	-	-	0	0
1980	2	0	1	0	1	-	-	0	2
1981	0	1	0	0	1	-	-	0	1
1982	0	1	0	0	1	-	-	0	1
1983	1	0	0	1	0	-	-	0	1
1984	2	0	2	0	0	-	-	0	2
1985	1	1	2	0	0	-	-	0	2
1986	1	1	2	0	0	-	-	0	2
1987	1	0	1	0	0	-	-	0	1
1988	2	0	2	0	0	-	-	0	2
1989	2	0	2	0	0	-	-	0	2
1990	0	0	0	0	0	-	-	0	0
TOTAL	12	4	12	1	3	-	-	0	16

NOTE: Les accidents mortels survenus dans le secteur des carrières (sable et gravier) relevant de l'administration générale de la sécurité ainsi que les décès par arrêt cardiaque sont exclus.

- Non déclaré.

ACCIDENTS MORTELS DANS LES MINES - QUÉBEC

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ				AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION	
1978	10	1	2	2	3	4	0	11
1979	9	1	3	4	2	1	0	10
1980	15	2	11	2	0	2	2(2)	17
1981	5	2	1	3	0	1	2	7
1982	1	1	2	0	0	0	0	2
1983	1	3	2	0	0	0	2	4
1984	4	1	4	0	0	1	0	5
1985	2	2	2	1	1	0	0	4
1986	6	2	6	0	1	1	0	8
1987	6	3	7	0	0	2	0	9
1988	4	2	0	0	3	3	0	6
1989	11	1	6	1	1	4	0	12
1990	9	0	4	2	0	3(3)	0	9
TOTAL	83	21	50	15	11	22	6	104

NOTE: (1) Les accidents mortels survenus lors d'un déplacement entre la résidence et le lieu de travail sont exclus.

(2) Exploration souterraine.

(3) Données préliminaires de la CSST.

- Non déclaré.

ACCIDENTS MORTELS DANS LES MINES - ONTARIO

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ				AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION	
1978	14	3	8	0	4	5	0	17
1979	8	1	5	0	2	2	0	9
1980	15	5	12	0	4	4	0	20
1981	11	3	9	0	2	3	0	14
1982	8	1	5	0	2	2	0	9
1983	6	2	6	0	1	1	0	8
1984	12	4	13	0	1	2	0	16
1985	5	5	8	0	2	0	0	10
1986	10	2	9	0	2	1	0	12
1987	16	7	15	1	3	3	1	23
1988	11	6	7	0	7	1	2	17
1989	8	3	8	0	2	0	1	11
1990	7	2	7	0	2	0	0	9
TOTAL	131	44	112	1	34	24	4	175

NOTE: Comprend les accidents mortels survenus dans une mine d'uranium qui sont de nature conventionnelle en matière de santé et sécurité.

(1) Ces accidents mortels ne relèvent pas de la compétence des organismes de réglementation et sont exclus des totaux.

ACCIDENTS MORTELS DANS LES MINES - MANITOBA

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ					AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION		
1978	2	0	2	0	0	0	-	0	2
1979	4	0	4	0	0	0	-	0	4
1980	3	3	5	0	0	1	-	0	6
1981	0	1	0	1	0	0	-	0	1
1982	2	1	2	1	0	0	-	0	3
1983	4	0	4	0	0	0	-	0	4
1984	1	0	1	0	0	0	-	0	1
1985	6	0	4	0	2	0	-	0	6
1986	1	1	2	0	0	0	-	0	2
1987	2	0	1	0	1	0	-	0	2
1988	0	4	3	1	0	0	-	0	4
1989	0	2	1	0	0	1	-	0	2
1990	1	0	1	0	0	0	-	0	1
TOTAL	26	12	30	3	3	2		0	38

NOTE: Les décès attribuables à des causes naturelles ainsi que les suicides sont exclus.
- Non déclaré.

ACCIDENTS MORTELS DANS LES MINES - SASKATCHEWAN

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ						AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLATIONS D'EXTRACTION PAR DISSOLUTION	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION		
1978	1	0	1	0	0	0	0	0	-	1
1979	2	0	2	0	0	0	0	0	-	2
1980	4	0	4	0	0	0	0	0	-	4
1981	4	0	4	0	0	0	0	0	-	4
1982	1	0	1	0	0	0	0	0	-	1
1983	1	0	1	0	0	0	0	0	-	1
1984	1	2	2	0	0	1	0	0	-	3
1985	2	0	2	0	0	0	0	0	-	2
1986	2	0	1	1	0	0	0	0	-	2
1987	2	1	2	0	0	0	0	1	-	3
1988	0	0	0	0	0	0	0	0	-	0
1989	0	1	1	0	0	0	0	0	-	1
1990	0	1	0	0	1	0	0	0	-	1
TOTAL	20	5	21	1	1	1	0	1	-	25

NOTE: Comprend les accidents mortels survenus dans une mine d'uranium qui sont de nature conventionnelle en matière de santé et sécurité.
- Non déclaré.

ACCIDENTS MORTELS DANS LES MINES - ALBERTA

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ				AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION	
1978	0	0	0	0	0	0	0	0
1979	2	0	2	0	0	0	0	2
1980	5	0	4	0	1	0	0	5
1981	1	0	0	0	0	1	0	1
1982	1	0	0	0	0	1	0	1
1983	1	0	1	0	0	0	0	1
1984	2	0	1	0	1	0	0	2
1985	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0
1987	1	0	1	0	0	0	0	1
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
TOTAL	13	0	9	0	2	2	0	13

NOTE: Seuls les accidents mortels ayant fait l'objet d'une enquête par l'administration de la santé et de la sécurité du travail sont compris. Comprend également les accidents mortels survenus dans les mines de charbon à ciel ouvert et souterraines ainsi que dans les carrières mais ne comprend pas ceux survenus dans les exploitations de sables bitumineux. Les arrêts cardiaques et autres décès associés à la maladie ne sont pas compris.

— Non déclaré.

ACCIDENTS MORTELS DANS LES MINES - COLOMBIE-BRITANNIQUE

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ				AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION	
1978	2	0	2	0	0	0	0	2
1979	1	3	2	2	0	0	0	4
1980	2	0	1	0	1	0	0	2
1981	3	1	2	1	1	0	0	4
1982	6	2	4	2	2	0	0	8
1983	3	4	2	0	4	0	1	7
1984	1	1	1	1	0	0	0	2
1985	4	2	1	3	1	0	1	6
1986	0	1	0	0	1	0	0	1
1987	4	3	2	2	1	1	1	7
1988	4 ^r	6 ^r	2	2 ^r	1 ^r	1	4	10 ^r
1989	2	4	5	1	0	0	0	6
1990	4	1	3	1	1	0	0	5
TOTAL	36	28	27	15	13	2	7	64

NOTE: Les décès attribuables à des causes naturelles, ainsi que les suicides et homicides, les accidents mortels survenus hors d'un chantier minier tel que l'écrasement d'un hélicoptère ou un accident automobile ne sont pas compris. Les accidents mortels qui auraient pu survenir dans un gisement alluvionnaire se retrouvent sous la rubrique carrières.

- Non déclaré.

^r Donnée révisée.

ACCIDENTS MORTELS DANS LES MINES - TERRITOIRES DU NORD-OUEST De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ				AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLA- TIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION	
1978	-	-	-	-	-	-	-	-
1979	2	0	1	1	0	-	-	2
1980	2	1	2	1	0	-	-	3
1981	1	0	0	1	0	-	-	1
1982	4	0	2	0	2(1)	-	-	4
1983	0	0	0	0	0	-	-	0
1984	3	0	2	0	1	-	-	3
1985	2	1	2	0	1(2)	-	-	3
1986	1	0	1	0	0	-	-	1
1987	1	0	1	0	0	-	-	1
1988	3	0	3	0	0	-	-	3
1989	0	0	0	0	0	-	-	0
1990	1	0	1	0	0	-	-	1
TOTAL	20	2	15	3	4	-	-	22

NOTE: (1) Deux accidents mortels dont l'un est survenu sur une route (frappé par un camion) et l'autre sur un chemin de glace (niveleuse s'est enlisée sous la glace).

(2) Accident mortel survenu sur une route.

- Non déclaré.

ACCIDENTS MORTELS DANS LES MINES - YUKON

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ				AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS	SOUT.	C.O.	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION	
1978	0	0	0	0	0	0	0	0
1979	1	0	0	1	0	0	0	1
1980	2	0	1	0	0	1	0	2
1981	2	0	1	0	0	1	0	2
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0
1988	1	0	1	0	0	0	0	1
1989	1	0	0	1	0	0	0	1
1990	0	1	0	0	0	0	1	1
TOTAL	7	1	3	2	0	2	1	8

NOTE: Les accidents mortels qui auraient pu survenir dans un gisement alluvionnaire sont compris sous la rubrique carrières.
- Non déclaré.

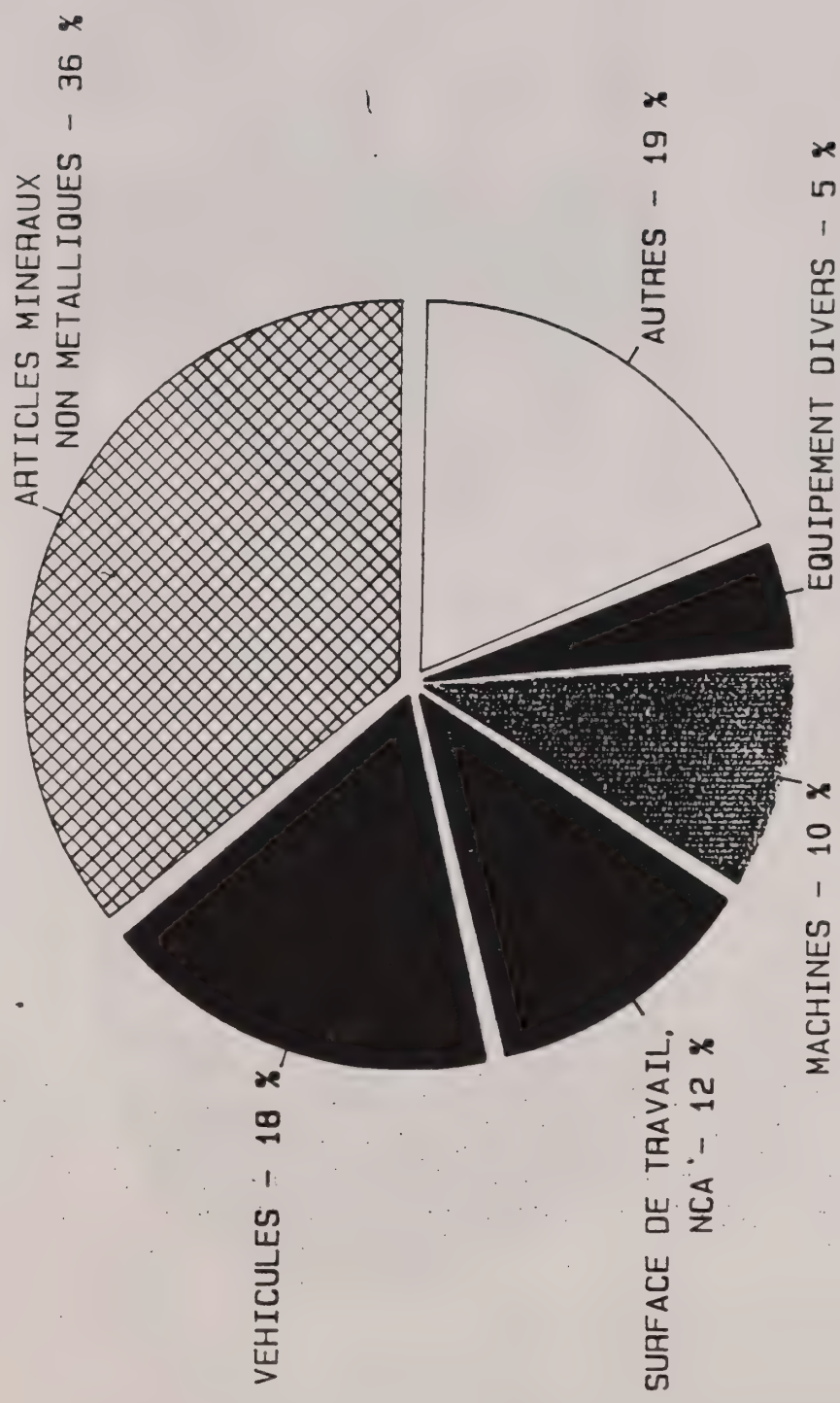
ACCIDENTS MORTELS DANS LES MINES - CANADA

De 1978 à 1990

ANNÉE	GENRE D'EMPLOYEUR		ACTIVITÉ						AUTRE	TOTAL
	SOCIÉTÉ	ENTREPRENEUR ET DIVERS *	SOUT.	C.O.	INSTALLATIONS DE SURFACE	CARRIÈRES (Sable et gravier)	EXPLORATION	AUTRE		
1978(1)	32	4	17	3	7	9	0	0	1(2)	36
1979	42	5	32	8	4	3	0	0	0	47
1980	51	12	42	3	8	8	2	0	0	63
1981	30	8	18	6	4	8	2	0	3(2)	38
1982	24	7	17	4	7(3)	3	0	0	0	31
1983	19	9	16	1	7	1	3	0	0	28
1984	29	8	28(4)	2	4	3	0	0	1(2)	37
1985	25	11	22	5	8(5),(6)	0	1	0	0	36
1986	21	7	21	1	4	2	0	0	2(7)	28
1987	32	15	30	4	5	5	3	0	0	47
1988	27 ^r	17 ^r	18	4 ^r	11 ^r	5	6	0	2(8)	44 ^r
1989	25	11	23	4	3	5	1	0	4(9)	36
1990	24	5	18	3	3	3	1	1(10)	0	29
TOTAL	381	119	302	48	75	55	19	1	13(11)	500

NOTE: Voir notes ci-annexées.
r Données révisées.

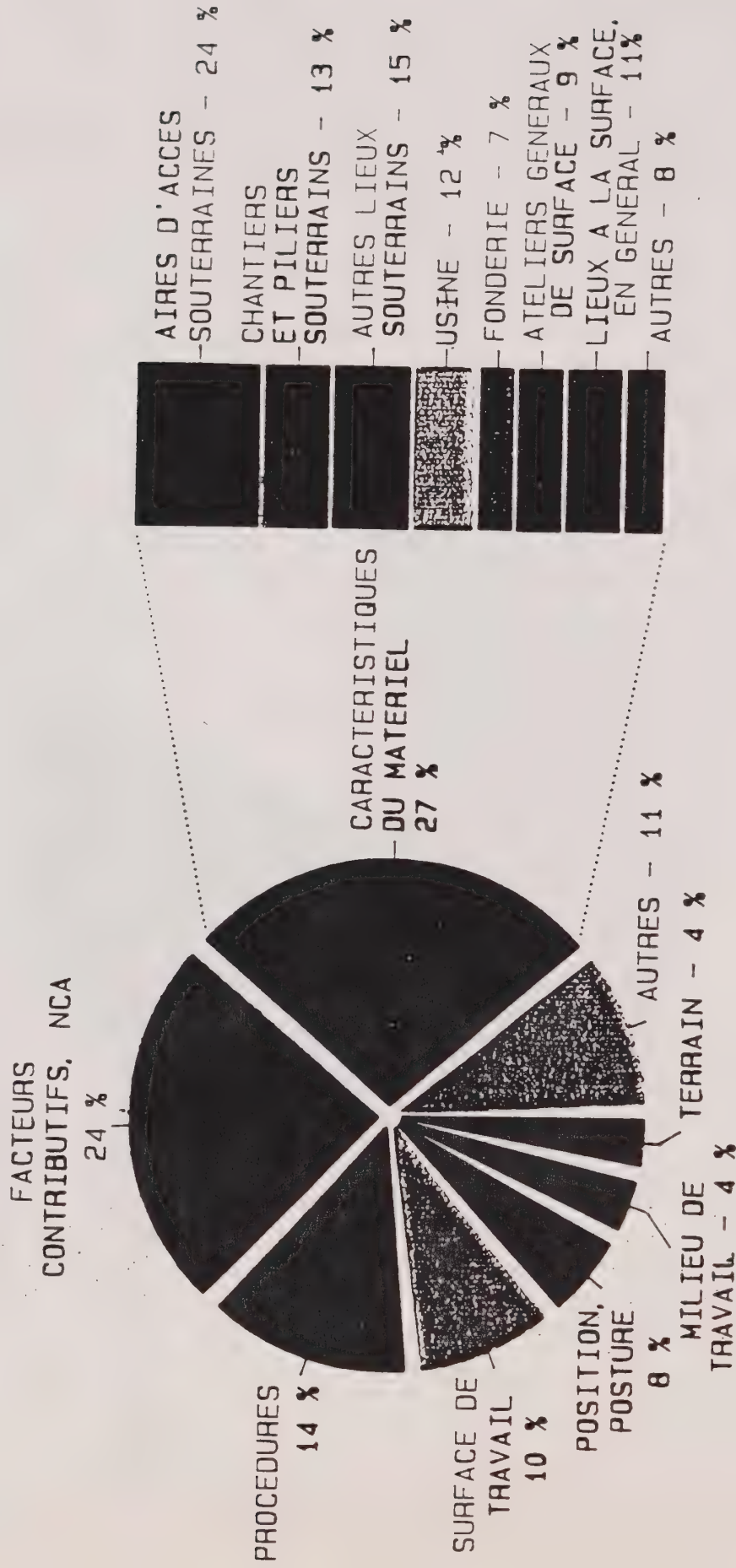
LESIONS MORTELLES SELON LA SOURCE DE L'ACCIDENT 1986-1990



97 ENTREES

Source : Base nationale de donnees sur les accidents dans les mines.

LESIONS AVEC TEMPS PERDU SELON LA CAUSE ET LE LIEU (1990)



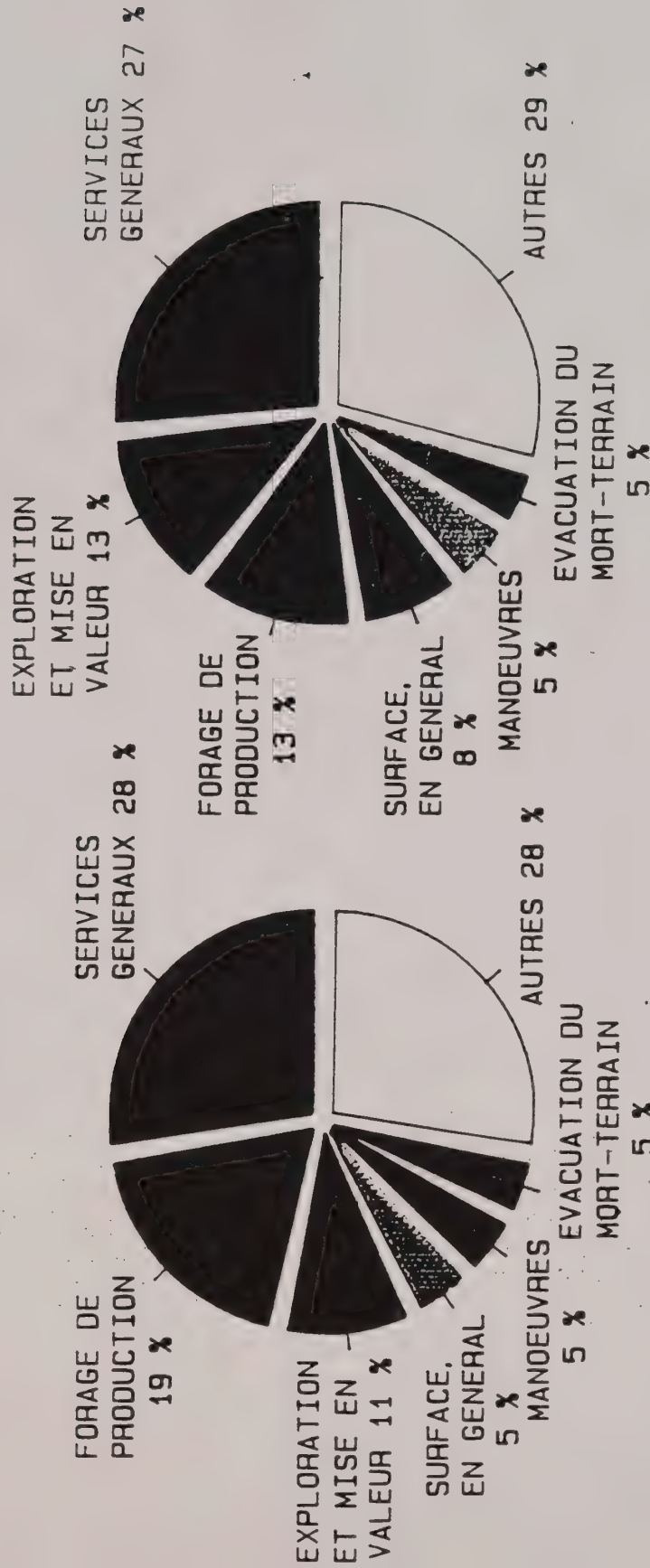
CAUSE DE L'ACCIDENT
606 ENTRÉES

LIEU DE L'ACCIDENT
163 ENTRÉES

LESIONS AVEC TEMPS PERDU SELON LA PROFESSION

1986-1989

1990



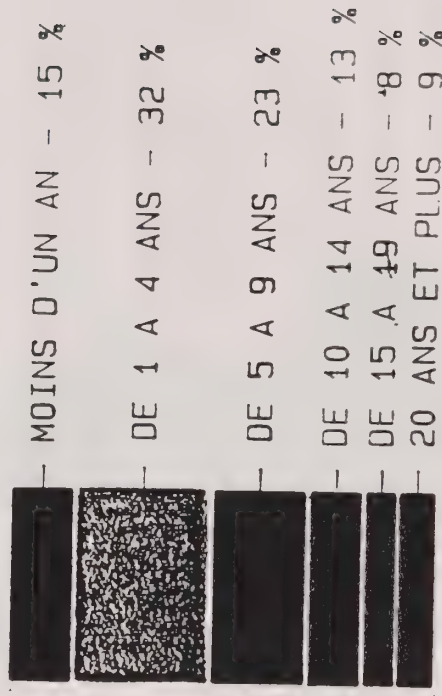
6 409 ENTREES

1 862 ENTREES

LESIONS AVEC TEMPS PERDU SUBIES PAR LES TRAVAILLEURS EN FORAGE DE PRODUCTION, SELON L'EXPERIENCE

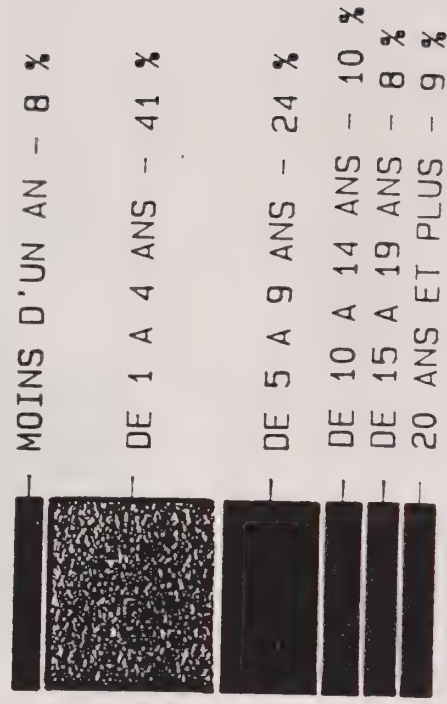
1986-1989
1 074 ENTREES

PROFESSIONS
EN FORAGE DE
PRODUCTION
19 %



1990
195 ENTREES

PROFESSIONS
EN FORAGE DE
PRODUCTION
13 %



ANNEES D'EXPERIENCE

Source: Base nationale de donnees sur les accidents dans les mines

48TH ANNUAL MINES MINISTERS' CONFERENCE

"The Importance of the Mineral Industry
to Canada"

Keith C. Hendrick
Chairman, Noranda Minerals Inc.

HALIFAX, Nova Scotia
September 22-24, 1991

VEUILLEZ NOTER

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Final

48TH MINES MINISTERS' CONFERENCE

HALIFAX

SEPTEMBER 22-25, 1991

"THE IMPORTANCE OF THE MINERAL INDUSTRY TO CANADA"

BY

KEITH C. HENDRICK

CHAIRMAN

NORANDA MINERALS INC.

SEPTEMBER 23, 1991.

MINISTERS, LADIES AND GENTLEMEN:

I AM VERY PLEASED TO PARTICIPATE IN THIS OPENING SESSION OF THE 48TH MINES MINISTERS' CONFERENCE.

IT IS A TESTING TIME FOR OUR INDUSTRY WITH THE ECONOMY STILL WEAK AND PRICES AT A LOW EBB.

SHARING THE PLATFORM THIS MORNING WITH THE HONOURABLE JAKE EPP, OUR FEDERAL MINISTER AND MR. LEO GIRARD, PRESIDENT OF THE UNITED STEEL WORKERS, INDICATES A COOPERATIVE SPIRIT WHICH WILL BE IMPORTANT FOR OUR INDUSTRY'S RECOVERY AND FUTURE PROSPERITY.

BEFORE RESPONDING TO OUR TOPIC, "**THE IMPORTANCE OF THE MINERAL INDUSTRY TO CANADA**", I WOULD LIKE TO THANK OUR HOSTS IN NOVA SCOTIA FOR THEIR GENEROUS HOSPITALITY AND EXCELLENT ARRANGEMENTS.

NOVA SCOTIA IS KNOWN FOR ITS PRODUCTION OF COAL RATHER THAN MINERALS BUT HAS ITS SHARE OF OPTIMISTIC PROSPECTORS SEEKING TO DIVERSIFY THE PROVINCE'S MINERAL BASE.

I BELIEVE IT IS ALSO SIGNIFICANT THAT WE ARE HERE AS CANADIANS FOCUSING ON INDUSTRY NEEDS AND CHALLENGES ACROSS OUR COUNTRY.

INTRODUCTION

I APPLAUD THE ORGANIZERS OF THIS CONFERENCE FOR THEIR CHOICE OF THEME. ALL TOO OFTEN PUBLIC COMMENT REFERS TO THE DECLINING RELATIVE IMPORTANCE OF MINING AND THE NEED TO DEVELOP STRONG MANUFACTURING AND SERVICE SECTORS.

I AGREE THE LATTER ARE NECESSARY TO ENSURE A RISING STANDARD OF LIVING FOR CANADA'S EXPANDING POPULATION. BUT UNTIL THEY ARE DEVELOPED AND COMPETITIVE, IT IS ESSENTIAL THE CONTRIBUTION OF MINING AND THE OTHER NATURAL RESOURCE INDUSTRIES TO CANADA'S ECONOMY BE MAINTAINED.

CERTAINLY, AN OBSERVER OF THE HISTORY AND GEOGRAPHICAL SWEEP OF OUR COUNTRY WOULD, I BELIEVE, QUICKLY REALIZE THAT MUCH OF THE ECONOMIC DEVELOPMENT ABOVE THE NARROW RIBBON OF ACTIVITY ALONG THE U.S. BORDER WAS DUE TO MINING AND, THIS IN TURN, REFLECTED THE COURAGE, INITIATIVE AND STRENGTH OF THE PEOPLE WHO DISCOVERED, DEVELOPED AND OPERATED THE MINES AND MINERAL PROCESSING PLANTS.

09 19 91 15 24 0410 952 000 AMT 210 300 000 000

TODAY, THE INDUSTRY IS WORLD SCALE WITH OVER 500 MINES EMPLOYING 106,000 PEOPLE DIRECTLY - AND WITH A RIPPLE EFFECT WHICH TRIPLES THE ECONOMIC IMPACT. LAST YEAR, CANADA'S MINERAL PRODUCTION HAD A VALUE OF \$20 BILLION - EQUIVALENT TO 4.5% OF OUR GROSS DOMESTIC PRODUCT AND ACCOUNTED FOR 18% OF OUR EXPORTS.

BACKGROUND

THIS PERFORMANCE, OF COURSE, DOES NOT MIRROR OR GUARANTEE THE FUTURE, PARTICULARLY WITH CHANGE THE DOMINANT CHARACTERISTIC OF BUSINESS AND INDUSTRY TODAY.

TO SET THE STAGE, I WOULD LIKE TO LOOK BACK FOR A MOMENT TO THE LAST DECADE.

THE EIGHTIES WERE A PERIOD OF TURMOIL REQUIRING ADJUSTMENT TO SEVERE DEPRESSION AND ATTENDANT OVERCAPACITY AND SURPLUS INVENTORIES, MATURE MARKETS, AGGRESSIVE MATERIAL COMPETITION, NEW TRADING PATTERNS AND HEIGHTENED PUBLIC CONCERN OVER THE ENVIRONMENT.

THE RESPONSE OF THE CANADIAN MINING INDUSTRY WAS POSITIVE. THE VALUE OF OUR MINERAL PRODUCTION IN 1989 WAS 46% ABOVE 1980. HOWEVER, IN THE SAME TEN YEARS, EMPLOYMENT IN THE METAL MINES AND PROCESSING PLANTS DROPPED 21%, REFLECTING THE DRIVE TO SURVIVE BY LOWERING COSTS, INCREASING PRODUCTIVITY AND REMAINING COMPETITIVE.

ALTHOUGH ECONOMISTS REFER TO A SEVEN YEAR UP CYCLE STARTING IN 1983, IT WAS ONLY IN THE FINAL YEARS OF THE DECADE THAT BASE METAL PRICES RESPONDED TO THE ECONOMIC RECOVERY. OVER MOST OF THE RECOVERY PHASE, THE CANADIAN MINING INDUSTRY HAD NEITHER THE MARKET INCENTIVE NOR THE FINANCIAL STRENGTH TO EXPAND. AS A RESULT, CANADIAN PRODUCTIONS OF COPPER, NICKEL AND ZINC WERE RELATIVELY UNCHANGED. HOWEVER, WORLD PRODUCTION INCREASED ABOUT 15% THEREBY LOWERING CANADA'S INTERNATIONAL RANKING.

NONETHELESS, CANADA REMAINS A LEADING MINERAL NATION BEING FIRST IN THE WORLD FOR URANIUM AND ZINC, SECOND FOR NICKEL AND POTASH, FOURTH FOR COPPER AND FIFTH FOR LEAD, GOLD AND SILVER.

THIS DOES NOT REPRESENT REASON FOR COMPLACENCY. GOLD WAS THE ONLY MAJOR METAL WHERE CANADA EXPERIENCED SIGNIFICANT GROWTH IN THE 80'S - OVER 200%. BUT EVEN HERE, CANADA DROPPED FROM THIRD TO FIFTH AS A WORLD PRODUCER, BEING PASSED BY THE UNITED STATES AND AUSTRALIA.

THE INCREASE IN GOLD PRODUCTION WAS NOT SURPRISING AS, FOR A TIME. 70 - 80% OF EXPLORATION EXPENDITURES IN CANADA WERE DIRECTED TO THE HUNT FOR NEW GOLD DEPOSITS. THIS WAS DUE TO SEVERAL FACTORS: - THE PRICE WAS RELATIVELY BETTER THAN OTHER METALS, THE POTENTIAL FOR DISCOVERY WAS HIGHER AND MARKETING WAS NOT A PROBLEM.

THIS EMPHASIS ON GOLD RAISED CONCERNS ABOUT CANADA'S LONGER TERM BASE METAL ORE RESERVES. IT WAS NOT ONLY A QUESTION OF MAINTAINING OUR INTERNATIONAL POSITION AS A PRODUCER, BUT OF SUPPLY TO OUR EXTENSIVE DOMESTIC SMELTING AND REFINING INDUSTRY AND TO OUR ESTABLISHED EXPORT MARKETS.

ACCORDING TO A RECENT STUDY BY THE HALIFAX-BASED METAL ECONOMICS GROUP, THE NUMBER OF ACTIVE CANADIAN GOLD PROJECTS AT THE DEVELOPMENT STAGE HAS DROPPED FROM 150 IN 1989 TO 51 THIS SUMMER. THERE HAS BEEN A COINCIDENT SHIFT BACK TO MORE BASE METAL EXPLORATION BUT AS YET THE INCIDENCE OF ECONOMIC DISCOVERIES IS DISAPPOINTING.

WHAT OF THE FUTURE?

THE CHANGES WE OBSERVED IN THE 80'S ARE ACCELERATING. THE WORLD IS NO LONGER PREDICTABLE AND COMFORTABLE. RATHER IT IS MORE INTERDEPENDENT AND THE LINKAGES ARE MORE IMMEDIATE. EVERY HOUR OUR RADIOS BRING US COMMENTARY DIRECT FROM THE WORLD'S CAPITALS. WE OBSERVE DISTANT WARS DIRECTLY ON THE TV SCREENS. WE BUY AND USE FOREIGN PRODUCTS EVERYDAY. FINANCIAL TRANSACTIONS MOVE FREELY ACROSS BORDERS. OUR METALS ARE SOLD WORLDWIDE.

WE ARE INDEED OPERATING IN A GLOBAL VILLAGE WHERE MAJOR POLITICAL EVENTS ARE COMMONPLACE. COMPETITION IS ALSO MORE INTENSE WITH FEW FAMILIAR BENCHMARKS AND THE MOVE TOWARD DEMOCRACY AND FREE MARKETS ACCELERATING. COUNTRIES ARE COALESCING IN COMPETING BLOCS. CANADA MADE SUCH A MOVE IN NEGOTIATING THE FREE TRADE AGREEMENT WITH THE UNITED STATES. NOW MEXICO SEEKS TO FOLLOW SUIT.

THE NEW EUROPE WILL HAVE 12 MEMBERS AND 325 MILLION PEOPLE BY 1993, MAKING IT THE LARGEST AND RICHEST BLOC.

IN THE PACIFIC, JAPAN IS CONSOLIDATING ITS POSITION AND COULD BECOME THE CORE OF A FAR EASTERN BLOC.

WITHIN THESE TRADING GROUPS, TRADE WILL BE FREER AMONG MEMBERS. HOWEVER, BETWEEN THE BLOCS, IT MAY WELL CONTINUE TO BE MANAGED. BECAUSE WITH THE INTENSITY OF GLOBAL COMPETITION, NO ONE WANTS A LEVEL PLAYING FIELD. RATHER, EVERYONE WANTS AN EDGE -- WHETHER THROUGH A JAPANESE KIERETSU OR SYMPATHETIC GOVERNMENTS.

CANADIAN GOVERNMENT POLICY HAS RESPONDED WITH BOLD AND, AT TIMES, POLITICALLY SENSITIVE MOVES. THE FTA WAS DESIGNED TO PROVIDE SECURE ACCESS TO THE NORTH AMERICAN MARKET AND THEREBY ENCOURAGE INDUSTRIAL RATIONALIZATION AND JUSTIFY INVESTMENT IN COMPETITIVE SCALE FACILITIES. THE GST SHOULD ALSO HELP TO LEVEL THE EXPORT PLAYING FIELD FOR DOMESTIC MANUFACTURERS.

UNFORTUNATELY, APPLICATION OF THESE POSITIVE MEASURES COINCIDED WITH THE RECENT RECESSION AND THE BANK OF CANADA'S DRIVE TO LOWER INFLATION.

WHILE THE LATTER MAY HAVE ESTABLISHED FAVOURABLE AND STABLE CONDITIONS FOR ECONOMIC GROWTH LONGER TERM, THE SHORT TERM PRICE HAS BEEN HIGHER INTEREST COSTS, A STRONGER DOLLAR AND INCREASED UNEMPLOYMENT.

COMPETITIVENESS

THESE CHANGES AND CHALLENGES HAVE ALSO FOSTERED A NEW FOCUS ON COMPETITIVENESS - IN ACADEMIC THEORY, IN GOVERNMENT POLICY AND IN INDUSTRY PRACTICE.

IT IS NO LONGER ADEQUATE FOR A COMPANY TO RELY ON ITS DOMESTIC MARKET OR FOR A COUNTRY TO RELY ON ITS BASIC NATURAL ADVANTAGES WHETHER THEY ARE LOW COST LABOUR OR INDIGENOUS RAW MATERIALS.

WITH FOREIGN COMPETITORS TARGETING OTHER DOMESTIC MARKETS, GEORGE PEAPPLES, PRESIDENT OF GENERAL MOTORS OF CANADA LIMITED, HAS SAID THAT "EVERY COMPANY MUST MANAGE ITS OPERATION WITH A VIEW THAT IT CAN COMPETE ANYWHERE IN THE WORLD".

THE HARVARD PROFESSOR, MICHAEL PORTER, IS THE ACKNOWLEDGED INTELLECTUAL LEADER OF THE NEW THEORY OF COMPETITION AMONG NATIONS. ACCORDING TO HIM, ACHIEVEMENT OF A HIGH AND RISING STANDARD OF LIVING DEPENDS ON THE PRODUCTIVITY WITH WHICH EACH NATION'S LABOUR AND CAPITAL ARE EMPLOYED.

MUCH HAS BEEN WRITTEN ABOUT STRATEGIES FOR SUCCESS IN COMPETING IN GLOBAL MARKETS. THEY INCLUDE:

- A GLOBAL PERSPECTIVE
- A DEMANDING DOMESTIC MARKET
- A FOCUS ON CUSTOMERS AND CONTINUOUS QUALITY IMPROVEMENT
- A SUPPORTIVE INVESTMENT CLIMATE - AND -
- PEOPLE EMPOWERMENT

THE CANADIAN MINING INDUSTRY, WHETHER CONSCIOUSLY OR NATURALLY, HAS BEEN FOLLOWING THAT PRESCRIPTION FOR SOME YEARS. TO ILLUSTRATE, I WOULD LIKE TO COMMENT BRIEFLY ON EACH STRATEGY:

A GLOBAL PERSPECTIVE

MINING COMPANIES ARE BY NATURE INTERNATIONAL. TO REPLACE THEIR ORE RESERVES AND EXPAND THEIR OPERATIONS, THEY HAVE TO SEARCH AND BUILD WHEREVER THE MINERALS CAN BE FOUND.

CANADIAN COMPANIES ARE GLOBAL IN ANOTHER SENSE. BECAUSE THE CANADIAN PRODUCTION OF MOST MINERALS AND METALS IS SUBSTANTIALLY IN EXCESS OF DOMESTIC REQUIREMENTS, EXPORT SALES TO WORLD MARKETS DETERMINES OUTPUT LEVELS AND PROFITABILITY.

A THIRD DIMENSION HAS BEEN ADDED RECENTLY AS THE SCALE AND COST OF MAJOR MINES HAVE ESCALATED. I REFER TO COMBINATIONS OF COMPANIES FROM DIFFERENT COUNTRIES OR ALLIANCES WHICH ARE FORMED TO INCREASE THEIR EXPOSURE TO OPPORTUNITIES AND TO SHARE THE RISKS. EXAMPLES INVOLVING CANADIAN COMPANIES ARE COMINCO WITH MIM (AUSTRALIA) AND METALLGESELLSCHAFT (GERMANY) AND NORANDA WITH BOLIDEN (SWEDEN).

A DEMANDING DOMESTIC MARKET

WITHIN CANADA, THERE IS INTENSE COMPETITION AMONG EXPLORATION GROUPS AND INDIVIDUAL PROSPECTORS IN THE SEARCH FOR NEW ORE BODIES. ONE NEED ONLY RECALL THE LEGAL CHALLENGES AND COURT BATTLES WHICH ARISE WITH EACH MAJOR DISCOVERY TO KNOW THIS IS THE CASE. THIS COMPETITION EXTENDS THROUGH DEVELOPMENT AND, FOR THE INTEGRATED PRODUCERS, INCLUDES ACQUISITIONS, PROCESSING AND MARKETING.

HOWEVER, THE REQUIREMENT OF A DEMANDING DOMESTIC MARKET REALLY APPLIES TO THE MANUFACTURING AND SERVICE INDUSTRIES RATHER THAN RESOURCE COMPANIES. THE THEORY SEEMS TO BE THAT DOMESTIC PRODUCERS CAPABLE OF COMPETING GLOBALLY SHOULD BE MOULDED BY AGGRESSIVE COMPETITORS AND DISCRIMINATING BUYERS AT HOME. THIS HAPPENS AS TRADE BARRIERS FALL, WITH THE RESULT THAT THERE ARE NO MORE COMFORTABLE PROTECTED DOMESTIC MARKETS.

WHILE CANADIAN MINERAL PRODUCERS HAVE TRADITIONALLY FACED SUCH OPEN MARKET CONDITIONS IN CANADA, THEIR REAL SUCCESS HAS BEEN IN THE MOST DEMANDING MARKET OF ALL - THE INTERNATIONAL COMMODITY MARKET. IT IS HERE

WHERE THEY HAVE DEMONSTRATED A STRONG FOCUS ON CUSTOMERS WHICH IS THE THIRD STRATEGY.

A FOCUS ON CUSTOMERS AND CONTINUOUS QUALITY IMPROVEMENT

DEALING WITH FUNGIBLE PRODUCTS WHICH LACK BRAND DIFFERENTIATION, CANADIAN PRODUCERS HAVE ESTABLISHED CONTINUING RELATIONSHIPS WITH MAJOR FOREIGN CONSUMERS BASED ON SUPERIOR VALUE AND SERVICE - ANTICIPATING NEEDS AND BEING READY WITH THE RIGHT PRODUCT IN ADVANCE.

FOR EXAMPLE, OUR VALLEYFIELD ZINC PLANT NOT ONLY PRODUCES GALVANIZING ALLOYS TO INDIVIDUAL CUSTOMER'S SPECIFICATIONS, BUT, HAS ALSO INVESTED IN FACILITIES TO PRODUCE ZINC SHOT FOR CONTINUOUS ELECTRO GALVANIZING LINES FOR WHICH IT IS THE EXCLUSIVE SUPPLIER TO SEVERAL STEEL MILLS.

MARKETING ARRANGEMENTS HAVE ALSO BEEN STRENGTHENED THROUGH JUST- IN-TIME DELIVERY ARRANGEMENTS AND QUALITY ASSURANCE PROGRAMS.

ALTOGETHER, THESE EFFORTS HAVE BEEN SO SUCCESSFUL THAT U.S. BUYERS CONSIDER CANADIAN PRODUCERS AS DOMESTIC SUPPLIERS.

THE PURSUIT OF QUALITY IS NOT LIMITED TO PRODUCTS. THE CANADIAN MINING INDUSTRY IS ALSO A SIGNIFICANT CONSUMER OF HIGH TECHNOLOGY AND SPENDS SUBSTANTIAL SUMS ON RESEARCH AND DEVELOPMENT OF PROCESSES AND PRODUCTS - TO IMPROVE QUALITY AND LOWER COSTS.

IN EXPLORATION, THE SEARCH IS FOR NEW METHODS OF DETECTION, PARTICULARLY TO PENETRATE GREATER DEPTHS. ANY BREAK THROUGH IN THIS AREA COULD WELL START A NEW WAVE OF DISCOVERIES.

ON THE PRODUCTION SIDE, THERE HAVE BEEN SIGNIFICANT ADVANCES. WITH MICROSEISMIC MEASUREMENT, BLAST HOLE DESIGN, REMOTE CONTROLLED SCOOP TRAMS, COMPUTER AIDED MODELLING AND PRODUCTION AND MILL AUTOMATION. THESE HAVE ENABLED SUBSTANTIAL IMPROVEMENTS IN UNDERGROUND PRODUCTIVITY. WHILE MODERN MILLS ARE COMPUTER CONTROLLED AND REMARKABLE FOR THEIR ABSENCE OF EMPLOYEES.

THE GOALS ARE CONTINUOUS MINING AND FULLY AUTOMATED OPERATIONS. THE FORMER MAY BE ACHIEVABLE THROUGH NEW DEPARTURES SUCH AS PLASMA BLASTING BUT THE VARIABILITY OF GEOLOGY AND GRADE FROM MINE TO MINE PROBABLY MAKES THE LATTER IMPRACTICAL IN MOST CASES.

THIS INVESTMENT IN HIGHER CAPACITY, MORE EFFICIENT TECHNOLOGY HAS INEVITABLY LED TO FEWER, BUT HIGHER QUALITY JOBS. THE DROP IN EMPLOYMENT WHICH OCCURRED IN THE 80'S CONTINUES. ENERGY MINES & RESOURCES' (EMR) SEPTEMBER 1991 MINING INDUSTRY EMPLOYMENT UPDATE CONTAINS DATA SHOWING EMPLOYMENT IN CANADIAN METAL MINES DROPPED FROM 45,000 IN MARCH 1989 TO 38,000 TWO YEARS LATER.

AS A SPECIFIC EXAMPLE, BRUNSWICK MINING AND SMELTING IS EMBARKED ON A PROGRAM TO REDUCE ITS MINE FORCE BY 125 OR 12% AND ITS SMELTER CREWS BY 100 OR 18%. THIS ACTION IS FORCED BY THE NEED TO REMAIN PROFITABLE AND TO JUSTIFY THE INVESTMENT IN MINE DEVELOPMENT AND SMELTER IMPROVEMENTS.

A SUPPORTIVE INVESTMENT CLIMATE

BRUNSWICK'S RESPONSE IS REPRESENTATIVE OF THE CONTINUING EFFORTS OF THE MINING INDUSTRY TO BE COMPETITIVE.

NONETHELESS, CANADA'S POSITION AS A WORLD MINERAL PRODUCER HAS TENDED TO SLIP IN RECENT YEARS. THIS HAS HAPPENED WITH THE EXPANSION OF COPPER IN CHILE, THE USA AND PORTUGAL; ZINC IN THE USA AND AUSTRALIA AND GOLD IN THE USA. IT RESULTED, IN PART, FROM THE APPLICATION IN OTHER COUNTRIES OF SOLVENT EXTRACTION WHICH IS NOT ADAPTABLE TO CANADA'S DEPOSITS AND FROM THE HIGHER INCIDENCE OF DISCOVERY IN DEVELOPING COUNTRIES.

THE LATTER REFLECTS THE EXPRESSED POLICIES OF GOVERNMENTS, LIKE CHILE'S AND MEXICO'S, TO PURSUE MINERAL EXPLORATION AND DEVELOPMENT. RECENT CHANGES TO THEIR REGULATIONS HAVE IMPROVED CONDITIONS FOR FOREIGN INVESTMENT AND COULD CAUSE A FURTHER SHIFT IN SUCH ACTIVITY AWAY FROM CANADA WHERE EXPLORATION EXPENDITURES ARE LOWER NOW THAN IN THE MID 80'S.

I WOULD HOPE THAT OTTAWA'S RESPONSE TO THE COMPETITIVE CHALLENGES BEING PREPARED IN THE DRAFT DISCUSSION PAPER "**PROSPERITY THROUGH COMPETITIVENESS**" WILL ACKNOWLEDGE THE CONTRIBUTION OF MINING TO CANADA'S CURRENT PROSPERITY AND ITS VITAL ROLE IN THE FUTURE.

IN THE PAST, THERE HAS BEEN A STRONG PARTNERSHIP BETWEEN OUR GOVERNMENTS AND OUR INDUSTRY. TOGETHER THEY HAVE OPENED MUCH OF OUR COUNTRY. THE INDUSTRY

CONTINUES TO NEED SUPPORT, PARTICULARLY IN THE REMOTE AREAS.

A GENERALLY USED RULE OF THUMB FOR MINE DEVELOPMENT IS FIVE TO SEVEN YEARS FOLLOWING DISCOVERY. THIS IS REASONABLE FOR A STRAIGHT FORWARD DEVELOPMENT WITH NO LEGAL OR ENVIRONMENTAL COMPLICATIONS AND A HIGH RATE OF RETURN. MARGINAL DEPOSITS REQUIRING SOME COMBINATION OF HIGHER PRICES, BETTER GRADES OR MORE TONNAGE TAKE LONGER - IF THEY MAKE - THE SAME APPLIES TO LOCATIONS REQUIRING EXTENSIVE INFRASTRUCTURE SUCH AS ROADS OR PORT FACILITIES.

FALCONBRIDGE CURRENTLY HAS TWO DEPOSITS WHICH FALL INTO THE LATTER CATEGORY. RAGLAN IN UNGAVA AND IZOK LAKE IN THE NORTH WEST TERRITORIES. RAGLAN WAS DISCOVERED TWENTY FIVE YEARS AGO AND DESPITE 11 MILLION TONNES OF RELATIVELY HIGH GRADE NICKEL ORE, LAY DORMANT UNTIL 1988 WHEN RENEWED DRILLING EXTENDED THE TONNAGE. A TEST VOYAGE EARLIER THIS YEAR BY AN ICE STRENGTHENED SHIP INDICATED THE SHIPPING SEASON COULD BE EXTENDED BY SEVERAL MONTHS. AS A RESULT OF THIS NEW DATA, FALCONBRIDGE HAVE COMMITTED A FURTHER \$35 MILLION TO FINISH A FEASIBILITY STUDY. WHEN COMPLETED, THE TOTAL PROJECT WILL HAVE COST \$500 MILLION AND TAKEN MORE THAN 30 YEARS.

IZOK LAKE SITUATED BETWEEN YELLOWKNIFE AND COPPERMINE WAS FIRST DISCOVERED IN 1971 WHEN 11 MILLION TONNES OF 14 1/2% ZINC, 3% COPPER, 1 1/2% LEAD AND 2 - 3 OUNCES SILVER WERE IDENTIFIED. IT WOULD HAVE BEEN A MINE MANY YEARS AGO IF LOCATED IN A LESS REMOTE SPOT. TO-DATE, NO ONE HAS BEEN ABLE TO OVERCOME THE TRANSPORTATION DISADVANTAGE, ALTHOUGH WE BELIEVE THE DEPOSIT WILL ULTIMATELY BE DEVELOPED.

THE DETERIORATION IN THE OVERALL COMPETITIVE POSITION OF CANADIAN MINING WAS CLEARLY ILLUSTRATED BY THE COMPARATIVE GRAPHS FOR 1987 AND 1990 INCLUDED IN E.M.R.'S REPORT "**FUNDS AND SHORT TERM OUTLOOK**" OF NOVEMBER LAST YEAR. ONE OF THE PRINCIPAL REASONS GIVEN WAS THE STRONGER CANADIAN DOLLAR.

WITH THE PRICES OF MOST METALS AND MINERALS DETERMINED IN U.S. DOLLARS, REALIZATIONS IN CANADIAN DOLLARS ARE DRAMATICALLY AFFECTED BY SIGNIFICANT CHANGES IN THE CANADIAN/U.S. EXCHANGE RATE.

IN FACT, THE REDUCTION IN REVENUE DUE TO CANADA'S ARTIFICIALLY ELEVATED EXCHANGE RATE OUTWEIGHS EVEN THE MOST STRENUOUS COST REDUCTION EFFORTS. IT HAS BEEN PARTICULARLY DAMAGING TO CANADA'S COMPETITIVE POSITION, OPPOSITE OTHER MINERAL PRODUCING NATIONS, WHEN THE U.S.

DOLLAR IS ALSO STRENGTHENING, AS HAPPENED OVER THE PAST FIVE YEARS.

THE STRONG CANADIAN DOLLAR IS LINKED TO THE HIGH INTEREST RATE POLICY WHICH THE BANK OF CANADA IS MAINTAINING, IN ORDER TO LOWER INFLATION AND THE CARRYING COST OF OUR ESCALATING NATIONAL DEBT.

THE IMPACT ON MINING AS A CAPITAL INTENSIVE INDUSTRY HAS BEEN SERIOUS. BY RAISING THE THRESHOLD RATE OF RETURN, IT HAS DISCOURAGED NEW INVESTMENTS AS WELL AS EXPENDITURES FOR EXPANSIONS, MODERNIZATIONS AND STRAIGHT FORWARD MAINTENANCE.

THIS YEAR HAS WITNESSED SOME IMPROVEMENT IN THE INFLATION AND INTEREST RATES DESPITE THE FURTHER INCREASE IN THE NATIONAL DEBT. HOPEFULLY, THESE WILL HERALD A RETURN TO A MORE REALISTIC EXCHANGE RATE, AS WELL ? THE TARGETTED REDUCTIONS IN INFLATION IS ACHIEVED. .

PEOPLE EMPOWERMENT

ALONG WITH ITS PROGRAMS TO DEVELOP AND USE MORE EFFICIENT METHODS AND EQUIPMENT AND NURTURE ITS MARKETS, THE CANADIAN MINING INDUSTRY HAS MOVED TO

ENLIST THE ENERGY, KNOWLEDGE AND IDEAS OF ITS WORK FORCE. THROUGH EMPLOYEE INVOLVEMENT, THIS HAS PROVIDED EMPLOYEES WITH MORE FREEDOM TO ACT AND PREPARED THE WAY FOR THE NEXT PHASE - PEOPLE EMPOWERMENT. THE LATTER INVOLVES GREATER TRAINING, MORE DELEGATION OF AUTHORITY, AND THE COURAGE OF MANAGEMENT TO RELY ON THEIR EMPLOYEES' JUDGEMENT AND COMMITMENT.

THE TRANSITION TAKES TIME BUT, WHEN ACCOMPLISHED, WILL LEAD TO A SENSE OF OWNERSHIP BY ALL EMPLOYEES AND A COHESIVE STRENGTH AND COMMITMENT WITHIN EACH OPERATION WHICH WILL OPTIMIZE ITS PERFORMANCE.

PEOPLE NATURALLY RESIST CHANGE AND THIS REACTION IS REINFORCED DURING TOUGH ECONOMIC TIMES. WITH UNEMPLOYMENT RISING AND CORPORATIONS STRUGGLING TO REDUCE COSTS, ESTABLISHING THE COOPERATIVE UNDERSTANDING NECESSARY FOR EMPLOYEE EMPOWERMENT IS DIFFICULT. IN FACT, THE MOOD HAS BEEN THE OPPOSITE AS EVIDENCED BY THE LONG 10 MONTH STRIKE AT BRUNSWICK WHICH ENDED IN MAY AND THE RECENT POSTAL AND PUBLIC SERVICE DISPUTES.

HOWEVER, THE NEED TO IMPROVE OVERALL UNION MANAGEMENT RELATIONS IN MINING IS RECOGNIZED. THE MINING ASSOCIATION OF CANADA HAS ARRANGED SEVERAL

EXPLORATORY MEETINGS WITH THE UNITED STEELWORKERS OF AMERICA TO INVESTIGATE AREAS FOR COOPERATIVE STUDY SUCH AS VOCATIONAL TRAINING AND SAFETY. BOTH ORGANIZATIONS SUPPORTED THE INITIATIVE OF THE HON. JOHN MACDOUGALL FOR THE STUDY OF MINING TRADES TRAINING ISSUES BY EMPLOYMENT AND IMMIGRATION CANADA WHICH WAS ANNOUNCED IN JUNE.

ACCORDING TO STATISTICS CANADA, THE AVERAGE WEEKLY EARNINGS IN MINING WERE THE HIGHEST AMONG ALL INDUSTRIAL DIVISIONS IN EACH OF THE LAST TEN YEARS. THIS REPRESENTS A STRONG RESPONSE BY THE INDUSTRY TOWARD AN EQUITABLE DISTRIBUTION OF THE BENEFITS OF MINING'S SUCCESS.

TO CONTINUE THAT PERFORMANCE, THE MINING COMPANIES MUST REMAIN PROFITABLE AND HAVE THE FLEXIBILITY TO ADJUST TO CHANGES IN TECHNOLOGY AND OPERATING LEVELS. THIS SHOULD BE POSSIBLE AS OUR EMPLOYEES AND THEIR REPRESENTATIVE ORGANIZATIONS BECOME MORE INVOLVED AND COMMITTED TO A COMMON GOAL WITH MANAGEMENT.

TAKEN TOGETHER, THESE ACTIONS INDICATE THE CANADIAN MINING INDUSTRY HAS BEEN FOLLOWING THE STRATEGIES IDENTIFIED AS CRITICAL TO BEING GLOBALLY COMPETITIVE.

ENVIRONMENT

OUR INDUSTRY HAS A FURTHER HURDLE TO OVERCOME - TO OPERATE IN AN ENVIRONMENTALLY ACCEPTABLE MANNER.

THE MINING INDUSTRY BY ITS NATURE IMPACTS WITH THE ENVIRONMENT. IN ADDITION, MANY METALS ARE INVOLVED IN ASSOCIATED OCCUPATIONAL AND HEALTH ISSUES IN THEIR FABRICATION, USE, AND ULTIMATE DISPOSAL.

TO MINIMIZE THE ENVIRONMENTAL EFFECTS, THERE COULD BE A TREND TO SMALLER LIMITED OPERATIONS LIKE KENNECOTT'S FLAMBEAU DEPOSIT IN WISCONSIN WHICH IS PLANNED TO BE SELECTIVELY MINED WITH THE ORE BEING TRANSPORTED OUT OF STATE FOR PROCESSING. THIS AVOIDS THE DISTURBANCE AND COST OF A CONCENTRATOR AND TAILINGS AREA.

IN FACT, SOME OF OUR INDUSTRY'S MORE VALUABLE ASSETS COULD BE CONCENTRATORS AND SMELTERS WITH ENVIRONMENTALLY APPROVED, ESTABLISHED OPERATIONS.

WITH THE ENVIRONMENTAL EMPHASIS ON THE REDUCTION OF WASTE, METALS HAVE AN ESTABLISHED PATTERN OF RECYCLING WITH THE FINAL RECOVERED PRODUCT COMPARABLE TO PRIMARY PRODUCTION. THIS IS A SUBSTANTIAL ADVANTAGE AND METALS MAY WELL BE THE ULTIMATE RENEWABLE RESOURCE.

TWO YEARS AGO, A SURVEY SPONSORED BY THE MINING ASSOCIATION OF CANADA ON CANADIAN PERCEPTIONS AND ATTITUDES TOWARD THE MINING INDUSTRY CONFIRMED THAT MINING WAS VIEWED AS A MAJOR SOURCE OF POLLUTION; ALSO, THAT THE PUBLIC WAS NOT AWARE OF THE INDUSTRY'S ACHIEVEMENTS IN IMPROVING ITS ENVIRONMENTAL RECORD OR OF ITS COMMITMENT TO DO SO.

THE ASSOCIATION RESPONDED WITH AN ENVIRONMENTAL POLICY ENDORSED BY ALL MAJOR CANADIAN MINING COMPANIES AND A GUIDE FOR ENVIRONMENTAL PRACTICE WHICH COVERS ALL PHASES FROM EXPLORATION TO DECOMMISSIONING OF OLD MINES.

THE NEED FOR A COORDINATED INDUSTRY EFFORT INTERNATIONALLY WAS ALSO RECOGNIZED. ISSUES ARE NOT RESTRICTED TO ANY ONE COUNTRY. RATHER, ONCE THEY SURFACE, THEY TEND TO BE QUICKLY IDENTIFIED AND PURSUED IN OTHER COUNTRIES. MANY WOULD BE BETTER DEALT WITH ON A GLOBAL BASIS AND DURING THE FORMATIVE STAGE.

AS A RESULT, WITH THE ASSISTANCE OF THE MINING ASSOCIATION OF CANADA, THE INTERNATIONAL COUNCIL ON

METALS AND THE ENVIRONMENT (ICME) WAS ESTABLISHED EARLIER THIS YEAR.

THE COUNCIL IS BASED IN OTTAWA AND IS DIRECTED BY A BOARD OF SENIOR EXECUTIVES FROM 20 MAJOR MINING COMPANIES WORLDWIDE. IT IS PROVIDING A CREDIBLE INTERNATIONAL FOCUS FOR THE INDUSTRY ON ENVIRONMENT AND HEALTH ISSUES AND REPRESENTS ONE FURTHER EFFORT BY THE MINERAL INDUSTRY TO FIND AN ACCEPTABLE BALANCE AMONG CONFLICTING ECONOMIC, SOCIAL AND ENVIRONMENTAL VALUES.

CONCLUSION

CANADA'S RESOURCE INDUSTRIES HAVE TRADITIONALLY SUPPORTED OUR HIGH STANDARD OF LIVING AND POSITIVE TRADE BALANCE.

TOO OFTEN WE HEAR THAT TO SURVIVE AND SUCCEED CANADA MUST DEVELOP A COMPETITIVE MANUFACTURING INDUSTRY FOLLOWING THE PATTERNS OF GERMANY AND JAPAN. THIS MAY BE TRUE BUT IT DOES NOT MEAN THAT MINING IS NO LONGER SIGNIFICANT. IN FACT, THE "SUNSET INDUSTRY" THEORY WAS REFUTED BY THE HON. MICHAEL WILSON, MINISTER OF INDUSTRY, SCIENCE AND TECHNOLOGY IN A LETTER TO GEORGE MILLER LAST MONTH. MR. WILSON WROTE:

OUR RESOURCE SECTORS HAVE ALWAYS BEEN THE MOST EXPOSED TO THE FORCES OF INTERNATIONAL COMPETITION AND THEREFORE HAD TO BE INNOVATIVE AND PROGRESSIVE IN ORDER TO SURVIVE AND THRIVE. THE POINT THAT I WAS TRYING TO MAKE WAS THAT WE CANNOT DEPEND ON OUR NATURAL RESOURCES ALONE FOR OUR WEALTH. AS YOU WELL KNOW, MANY CANADIANS HAVE A STRONG BELIEF THAT OUR RESOURCES GUARANTEE US A HIGH STANDARD OF LIVING. IT IS THIS ATTITUDE AS MUCH AS ANYTHING THAT POSES A DANGER TO OUR FUTURE PROSPERITY. IN FACT, THE SUCCESS OF THE MINING SECTOR IS DUE MORE TO THE INGENUITY OF CANADIANS RATHER THAN THE QUALITY OF THE RESOURCE ENDOWMENT.

GIVEN A SUPPORTIVE GOVERNMENT POLICY FRAMEWORK, THE MINERAL INDUSTRY WILL CONTINUE TO APPLY THAT INGENUITY AND TO PROVIDE LEADERSHIP FOR A CANADIAN ECONOMY STRIVING TO BE COMPETITIVE.

RECOMMENDATIONS

I MENTIONED EARLIER THE EFFORT BY DEVELOPING COUNTRIES LIKE CHILE AND MEXICO TO ENCOURAGE EXPLORATION AND DEVELOPMENT BY FOREIGN MINING COMPANIES, INCLUDING CANADIAN. THIS IS HAPPENING AT A TIME WHEN EXTRA EFFORT IS REQUIRED IN CANADA TO INCREASE OUR OWN RESERVE BASE.

MINISTERS, THE BRIEFS THAT HAVE BEEN SUBMITTED TO YOU BY THE PROSPECTORS AND DEVELOPERS ASSOCIATION AND THE MINING ASSOCIATION ALSO RAISE SERIOUS QUESTIONS AS TO CANADA'S RELATIVE ATTRACTIVENESS TODAY AS A PLACE FOR MINERAL EXPLORATION AND DEVELOPMENT.

UNFORTUNATELY, THE EVIDENCE TO DATE IS FRAGMENTARY AND SOMEWHAT ANECDOTAL. ACCORDINGLY, I WOULD LIKE TO SUGGEST THAT A JOINT TASK FORCE, CONSISTING OF FEDERAL AND PROVINCIAL OFFICIALS AND INDUSTRY REPRESENTATIVES DRAWN FROM NATIONAL AND PROVINCIAL ASSOCIATIONS, BE ASKED TO ASSEMBLE RELIABLE DATA ON RECENT TRENDS IN EXPLORATION SPENDING BY CANADIAN COMPANIES IN CANADA AND ABROAD. THE STUDY SHOULD ALSO EXAMINE HOW CANADA IS PERCEIVED OPPOSITE OTHER COUNTRIES IN TERMS OF THE FACTORS INFLUENCING EXPENDITURES SUCH AS GEOLOGICAL POTENTIAL, POLITICAL RISK, UNCERTAINTY AND COSTS. TO THE EXTENT POSSIBLE, OBJECTIVE DATA SHOULD ALSO BE SOUGHT

ON CHANGING INVESTMENT, REGULATORY AND OTHER POLICIES
IN FOREIGN COUNTRIES.

BOTH INDUSTRY AND GOVERNMENTS NEED A SOLID BASE OF
FACTS IN ORDER TO WORK EFFECTIVELY TOGETHER ON THE
CRITICAL CANADIAN POLICY ISSUES THAT HAVE BEEN RAISED
AND I AM CONFIDENT THE MINING INDUSTRY WOULD READILY
PARTICIPATE IN A TASK FORCE TO DEVELOP SUCH A DATA BASE.

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Traduction du Secrétariat

48^e CONFÉRENCE ANNUELLE DES MINISTRES DES MINES

"L'importance de l'industrie minière pour le Canada"

Keith C. Hendrick
Président, Minéraux Noranda Inc.

HALIFAX (Nouvelle-Écosse)
Du 22 au 24 septembre 1991

VEUILLEZ NOTER

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48^e CONFÉRENCE DES MINISTRES DES MINES

HALIFAX

DU 22 AU 24 SEPTEMBRE 1991

"L'IMPORTANCE DE L'INDUSTRIE MINIÈRE POUR LE CANADA"

PAR

KEITH C. HENDRICK

PRÉSIDENT

LES MINÉRAUX NORANDA INC.

LE 23 SEPTEMBRE 1991.

MESSIEURS LES MINISTRES, MESDAMES ET MESSIEURS,

IL ME FAIT PLAISIR DE PARTICIPER À LA SÉANCE D'OUVERTURE DE LA 48^E CONFÉRENCE DES MINISTRES DES MINES.

LES TEMPS SONT DIFFICILES POUR L'INDUSTRIE MINIÈRE COMPTE TENU DE LA FAIBLESSE DE L'ÉCONOMIE ET DES COURS.

LA PRÉSENCE SUR LA TRIBUNE DE L'HONORABLE JAKE EPP, NOTRE MINISTRE FÉDÉRAL, DE M. LEO GIRARD, PRÉSIDENT DES MÉTALLURGISTES UNIS D'AMÉRIQUE, ET DE MOI-MÊME, TRADUIT UN ESPRIT DE COLLABORATION QUI SERA IMPORTANT POUR LA REPRISE DE L'INDUSTRIE ET LA PROSPÉRITÉ FUTURE.

AVANT DE PASSER À NOTRE THÈME, "L'IMPORTANCE DE L'INDUSTRIE MINIÈRE POUR LE CANADA", J'AIMERAIS REMERCIER NOS HÔTES DE LA NOUVELLE-ÉCOSSE POUR LEUR CHALEUREUSE HOSPITALITÉ ET L'EXCELLENCE DES INSTALLATIONS.

LA NOUVELLE-ÉCOSSE EST RECONNUE POUR SA PRODUCTION DE CHARBON PLUTÔT QUE DE MINÉRAUX, MAIS POSSÈDE SA PART DE PROSPECTEURS OPTIMISTES QUI CHERCHENT À DIVERSIFIER LES RÉSERVES MINÉRALES DE LA PROVINCE.

JE CROIS QUE NOTRE PRÉSENCE ICI EN TANT QUE CANADIENS QUI RECONNAISSENT L'IMPORTANCE DES BESOINS DE L'INDUSTRIE ET DES DÉFIS QUE

NOUS AVONS À RELEVER AU PAYS EST IMPORTANTE.

INTRODUCTION

JE FÉLICITE LES ORGANISATEURS DE LA CONFÉRENCE POUR LEUR CHOIX DU THÈME. LES OBSERVATIONS PUBLIQUES FONT TROP SOUVENT ALLUSION AU DÉCLIN DE L'IMPORTANCE RELATIVE DE L'EXTRACTION MINIÈRE ET À LA NÉCESSITÉ DE DÉVELOPPER DE SOLIDES SECTEURS MANUFACTURIER ET DES SERVICES.

JE CONVIENS QUE CE DERNIER POINT EST NÉCESSAIRE POUR GARANTIR UNE HAUSSE DU NIVEAU DE VIE DE LA POPULATION CROISSANTE DU CANADA. MAIS AVANT QUE CES SECTEURS SOIENT DÉVELOPPÉS ET COMPÉTITIFS, IL EST ESSENTIEL QUE L'INDUSTRIE MINIÈRE ET LES AUTRES INDUSTRIES D'EXPLOITATION DES RESSOURCES NATURELLES CONTINUENT DE CONTRIBUER À L'ÉCONOMIE CANADIENNE.

CERTES, UN OBSERVATEUR DES PARTICULARITÉS HISTORIQUES ET GÉOGRAPHIQUES DE NOTRE PAYS SE RENDRAIT RAPIDEMENT COMPTE, À MON AVIS, QU'UNE BONNE PART DE L'ACTIVITÉ ÉCONOMIQUE DANS L'ÉTROITE BANDE DE TERRE QUI BORDE LA FRONTIÈRE AVEC LES É.-U. ÉTAIT TRIBUTAIRE DE L'EXTRACTION MINIÈRE QUI EST, À SON TOUR, LE REFLET DU COURAGE, DE L'ESPRIT D'INITIATIVE ET DE LA DÉTERMINATION DES PERSONNES QUI ONT DÉCOUVERT ET EXPLOITÉ LES MINES ET QUI ONT TRAITÉ LES MINÉRAUX.

DE NOS JOURS, L'INDUSTRIE EST DE TAILLE INTERNATIONALE PUIS-
QU'ELLE COMPTE PLUS DE 500 MINES QUI ENGENDRENT 106 000 EMPLOIS
DIRECTS ET QUI ONT UN EFFET SECONDAIRE QUI PERMET DE TRIPLER SON
INCIDENCE ÉCONOMIQUE. ON A ÉVALUÉ L'AN DERNIER LA PRODUCTION
MINÉRALE DU CANADA À 20 MILLIARDS DE DOLLARS, SOIT L'ÉQUIVALENT
DE 4,5 % DE NOTRE PRODUIT INTÉRIEUR BRUT ET DE 18 % DE NOS
EXPORTATIONS.

CONTEXTE

CE RENDEMENT NE REFLÈTE PAS OU NE GARANTIT CERTES PAS L'AVENIR,
NOTAMMENT COMPTE TENU DE L'ÉVOLUTION ACTUELLE DE L'ACTIVITÉ
COMMERCIALE.

POUR VOUS DONNER UNE IDÉE DU CONTEXTE, J'AIMERAIS FAIRE UN BREF
SURVOL DE LA DERNIÈRE DÉCENNIE.

LES ANNÉES 1980 ONT ÉTÉ UNE PÉRIODE DE BOULEVERSEMENT AU COURS DE
LAQUELLE IL A FALLU S'ADAPTER À UNE RUDE DÉPRESSION, À UNE
PRODUCTION ET À DES STOCKS EXCÉDENTAIRES, À DES MARCHÉS MÛRS, À
UNE COMPÉTITION AGRESSIVE, À DE NOUVEAUX SCHÉMAS COMMERCIAUX ET À
UNE PRÉOCCUPATION CROISSANTE PAR LE PUBLIC DE L'ENVIRONNEMENT.

L'INDUSTRIE MINIÈRE CANADIENNE A RÉAGIT POSITIVEMENT. LA VALEUR
DE NOTRE PRODUCTION MINÉRALE EN 1989 EST SUPÉRIEURE DE 46 % À
CELLE DE 1980. LE NOMBRE D'EMPLOIS DANS LES MINES MÉTALLIQUES ET

LES USINES DE TRAITEMENT A CHUTÉ DE 21 %, CE QUI TRADUIT UNE VOLONTÉ DE SURVIVRE EN RÉDUISANT LES COÛTS, EN AUGMENTANT LA PRODUCTIVITÉ ET EN DEMEURANT COMPÉTITIF.

BIEN QUE LES ÉCONOMISTES PARLENT D'UN CYCLE DE SEPT ANS QUI A COMMENCÉ EN 1983, CE N'EST QU'AU COURS DES TOUTES DERNIÈRES ANNÉES DE LA DÉCENNIE QUE LES COURS DES MÉTAUX COMMUNS ONT SUIVI LA REPRISE DE L'ÉCONOMIE. AU COURS DE LA MAJEURE PARTIE DE CETTE PÉRIODE, L'INDUSTRIE MINIÈRE CANADIENNE N'ÉTAIT PAS INCITÉE À S'ÉTENDRE ET NE POSSÉDAIT PAS LES FONDS NÉCESSAIRES. EN CONSÉQUENCE, LA PRODUCTION CANADIENNE DE CUIVRE, DE NICKEL ET DE ZINC N'A PAS BEAUCOUP CHANGÉ. LA PRODUCTION MONDIALE A TOUTEFOIS AUGMENTÉ D'ENVIRON 15 %, CE QUI A EU POUR EFFET DE FAIRE RECULER LA POSITION INTERNATIONALE DU CANADA.

NÉANMOINS, LE CANADA DEMEURE L'UN DES GRANDS PRODUCTEURS MINIERES: PREMIER POUR L'URANIUM ET LE ZINC, DEUXIÈME POUR LE NICKEL ET LA POTASSE, QUATRIÈME POUR LE CUIVRE ET CINQUIÈME POUR LE PLOMB, L'OR ET L'ARGENT.

IL N'Y A PAS LIEU D'ÊTRE CONTENT DE SOI. AU COURS DES ANNÉES 1980, L'OR A ÉTÉ LE SEUL MÉTAL QUI A ÉTÉ L'OBJET D'UNE CROISSANCE CONSIDÉRABLE AU CANADA, SOIT PLUS DE 200 %. MALGRÉ TOUT, LE CANADA EST PASSÉ DU TROISIÈME AU CINQUIÈME RANG MONDIAL, SURPASSÉ PAR LES ÉTATS-UNIS ET L'AUSTRALIE.

L'AUGMENTATION DE LA PRODUCTION D'OR N'EST PAS ÉTONNANTE, CAR 70 À 80 % DES DÉPENSES D'EXPLORATION AU CANADA AVAIENT ÉTÉ ENGAGÉES PENDANT UN CERTAIN TEMPS À LA RECHERCHE DE NOUVEAUX GISEMENTS AURIFÈRES. CETTE RECHERCHE EST ATTRIBUABLE À PLUSIEURS FACTEURS : LE COURS DE L'OR ÉTAIT RELATIVEMENT SUPÉRIEUR À CEUX D'AUTRES MÉTAUX, LES POSSIBILITÉS DE DÉCOUVERTE ÉTAIENT PLUS GRANDES ET LA COMMERCIALISATION NE POSAIT AUCUN PROBLÈME.

CETTE IMPORTANCE ACCORDÉE À L'OR A SOULEVÉ DES CRAINTES EN CE QUI CONCERNE LES RÉSERVES À LONG TERME DU CANADA. IL NE S'AGISSAIT PAS SIMPLEMENT DE CONSERVER NOTRE RANG EN TANT QUE PRODUCTEUR MONDIAL, MAIS D'APPROVISIONNER NOTRE IMPORTANTE INDUSTRIE DE LA FONDERIE ET DU RAFFINAGE ET NOS MARCHÉS D'EXPORTATION.

SELON UNE ÉTUDE ENTREPRISE PAR UNE SOCIÉTÉ QUI SE SPÉCIALISE EN ÉCONOMIE DES MÉTAUX COMMUNS, DONT LE SIÈGE EST À HALIFAX, LE NOMBRE DE PROJETS D'EXPLOITATION DE MINES AURIFÈRES A CHUTÉ DE 150 EN 1989 À 51 CET ÉTÉ. ON A REMARQUÉ UN RETOUR CONCOMITANT À UNE PLUS GRANDE EXPLORATION. JUSQU'À PRÉSENT, LA FRÉQUENCE DES DÉCOUVERTES ÉCONOMIQUES EST DÉCEVANTE.

QUE NOUS RÉSERVE L'AVENIR?

LE RYTHME DES CHANGEMENTS OBSERVÉS AU COURS DES ANNÉES 1980 S'ACCÉLÈRE. LE MONDE N'EST PLUS PRÉVISIBLE ET RÉCONFORTANT. TOUT EST MAINTENANT PLUS IMBRIQUÉ ET LES LIENS SONT PLUS IMMÉDIATS.

CHAQUE HEURE, NOS RADIOS NOUS INFORMENT SUR LES ÉVÉNEMENTS DANS LES CAPITALES DU MONDE ENTIER. À L'AIDE DE LA TÉLÉVISION, NOUS SOMMES TÉMOINS DE GUERRES ÉLOIGNÉES. NOUS ACHETONS ET UTILISONS QUOTIDIENNEMENT DES PRODUITS ÉTRANGERS. LES OPÉRATIONS FINANCIÈRES NE CONNAISSENT PAS DE FRONTIÈRES. NOS MÉTAUX SONT VENDUS À L'ÉCHELLE PLANÉTAIRE.

NOUS VIVONS VRAIMENT DANS UN VILLAGE PLANÉTAIRE OÙ LES ÉVÉNEMENTS POLITIQUES IMPORTANTS SONT COURANTS. LA CONCURRENCE EST ENCORE PLUS RUDE CAR IL Y A MOINS DE POINTS DE REPÈRE FAMILIERS ET LA DÉMOCRATIE ET LES MARCHÉS LIBRES PROGRESSED. LES PAYS SE RÉUNISSENT EN BLOCS QUI SE FONT CONCURRENCE. LE CANADA EN A FAIT AUTANT LORSQU'IL A CONCLU L'ACCORD DE LIBRE-ÉCHANGE AVEC LES ÉTATS-UNIS. LE MEXIQUE SOUHAITE CONCLURE AUSSI UN TEL ACCORD.

LA NOUVELLE EUROPE DE 1993 COMPTERA 12 MEMBRES ET 325 MILLIONS D'HABITANTS, CE QUI EN FAIT LE BLOC LE PLUS IMPORTANT ET LE PLUS RICHE.

DANS LE PACIFIQUE, LE JAPON RENFORCE SA POSITION ET POURRAIT DEVENIR LE NOYAU D'UN BLOC ASIATIQUE.

AU SEIN DE CES BLOCS COMMERCIAUX, LE COMMERCE SERA PLUS LIBRE ENTRE LES MEMBRES. IL POURRAIT CONTINUER TOUTEFOIS D'ÊTRE RÉGI ENTRE LES BLOCS. EN RAISON DE L'INTENSITÉ DE LA COMPÉTITION INTERNATIONALE, PERSONNE NE SOUHAITE UN CHAMP D'ACTION OÙ TOUT

EST PERMIS. ON VEUT PLUTÔT UNE LIMITE, C'EST-À-DIRE GRÂCE À UN KIERETSU JAPONAIS OU À DES GOUVERNEMENTS BIEN DISPOSÉS.

LA POLITIQUE DU GOUVERNEMENT CANADIEN A RÉAGIT PAR DES MESURES AUDACIEUSES ET PARFOIS SENSIBLES D'UN POINT DE VUE POLITIQUE. L'ALE A ÉTÉ CONÇU POUR GARANTIR L'ACCÈS AU MARCHÉ NORD-AMÉRICAIN ET DONC DE FAVORISER LA RATIONALISATION INDUSTRIELLE ET DE JUSTIFIER LES INVESTISSEMENTS DANS LES INSTALLATIONS COMPÉTITIVES. LA TPS DEVRAIT ÉGALEMENT CONTRIBUER À NIVELER LE SECTEUR DES EXPORTATIONS POUR LES FABRICANTS CANADIENS.

MALHEUREUSEMENT, L'APPLICATION DE CES MESURES POSITIVES A COÏNCIDÉ AVEC LA RÉCESSION ET LA VOLONTÉ DE LA BANQUE DU CANADA DE JUGULER L'INFLATION.

BIEN QUE CE DERNIER POINT AURAIT PU CRÉER DES CONDITIONS FAVORABLES ET STABLES POUR UNE CROISSANCE ÉCONOMIQUE À PLUS LONG TERME, LE RÉSULTAT À COURT TERME A ÉTÉ UNE HAUSSE DES TAUX D'INTÉRÊTS, DU DOLLAR ET DU TAUX DE CHÔMAGE.

COMPÉTITIVITÉ

CES CHANGEMENTS ET CES DÉFIS ONT ÉGALEMENT SUSCITÉ UNE NOUVELLE ATTENTION SUR LA COMPÉTITIVITÉ DANS LES UNIVERSITÉS, LES POLITIQUES GOUVERNEMENTALES ET LES PRATIQUES INDUSTRIELLES.

UNE ENTREPRISE NE PEUT PLUS COMPTER SUR SON MARCHÉ NATIONAL OU UN PAYS NE PEUT PLUS SE FIER À SES AVANTAGES NATURELS FONDAMENTAUX COMME UNE MAIN-D'OEUVRE BON MARCHÉ OU DES MATIÈRES PREMIÈRES.

PUISQUE QUE DES COMPÉTITEURS ÉTRANGERS VISENT D'AUTRES MARCHÉS NATIONAUX, GEORGE PEAPPLES, PRÉSIDENT DE GENERAL MOTORS DU CANADA, A DÉCLARÉ QUE CHAQUE ENTREPRISE DOIT GÉRER SES ACTIVITÉS DANS LE BUT DE POUVOIR CONCURRENCER D'AUTRES ENTREPRISES N'IMPORTE OÙ AU MONDE.

MICHAEL PORTER, PROFESSEUR À HARVARD, EST L'AUTORITÉ INTELLECTUELLE EN CE QUI CONCERNE LA NOUVELLE THÉORIE DE LA COMPÉTITION ENTRE PAYS. SELON LUI, UN NIVEAU DE VIE ÉLEVÉ ET EN PROGRESSION EST TRIBUTAIRE DU RENDEMENT DE LA MAIN-D'OEUVRE ET DES CAPITAUX D'UN PAYS.

BEAUCOUP D'ENCRE A COULÉ SUR LA FAÇON D'AVOIR DU SUCCÈS SUR LES MARCHÉS INTERNATIONAUX. VOICI QUELQUES FACTEURS :

- UN CONTEXTE PLANÉTAIRE;
- LA DEMANDE D'UN MARCHÉ NATIONAL;
- L'ACCENT MIS SUR LES CONSOMMATEURS ET UNE AMÉLIORATION PERMANENTE DE LA QUALITÉ;
- UN MILIEU QUI FAVORISE LES INVESTISSEMENTS;
- UNE MAIN-D'OEUVRE COMPÉTENTE.

L'INDUSTRIE MINIÈRE CANADIENNE ADOPTE, VOLONTAIREMENT OU NATURELLEMENT, CE MODE D'ACTION DEPUIS QUELQUES ANNÉES. POUR VOUS DONNER QUELQUES EXEMPLES, J'AIMERAI VOUS FAIRE PART BRIÈVEMENT DE MES OBSERVATIONS SUR CHACUN DE CES POINTS.

UN CONTEXTE PLANÉTAIRE

LES SOCIÉTÉS MINIÈRES SONT FORCÉMENT DE NATURE INTERNATIONALE. POUR RECONSTITUER LEURS RÉSERVES DE MINÉRAIS ET ÉTENDRE LEURS ACTIVITÉS, ELLES DOIVENT CHERCHER DE NOUVEAUX GISEMENTS ET S'INSTALLER LÀ OÙ ELLES LES TROUVENT.

LES SOCIÉTÉS CANADIENNES SONT DE NATURE PLANÉTAIRE D'UN AUTRE POINT DE VUE. PUISQUE LA PRODUCTION CANADIENNE DE LA PLUPART DES MINÉRAUX ET DES MÉTAUX DÉPASSE CONSIDÉRABLEMENT LA DEMANDE NATIONALE, LES EXPORTATIONS DÉTERMINENT LA PRODUCTION ET LA RENTABILITÉ.

UN TROISIÈME FACTEUR S'EST RÉCEMMENT GREFFÉ AUX AUTRES, À SAVOIR LA HAUSSE DE LA TAILLE ET DES COÛTS DES MINES IMPORTANTES. JE FAIS ALLUSION AUX ASSOCIATIONS DE SOCIÉTÉS DE PAYS DIFFÉRENTS OU AUX ALLIANCES QUI SONT CRÉÉES POUR ACCROÎTRE LES POSSIBILITÉS ET PARTAGER LES RISQUES. À TITRE D'EXEMPLE CANADIEN, CITONS COMINCO QUI S'EST ASSOCIÉE À MIM (AUSTRALIE) ET À METALLGESELLSCHAFT (ALLEMAGNE) ET NORANDA À BOLIDEN (SUÈDE).

LA DEMANDE D'UN MARCHÉ NATIONAL

AU CANADA, LA COMPÉTITION ENTRE LES GROUPES D'EXPLORATION ET LES PROSPECTEURS INDIVIDUELS EST RUDE POUR LA DÉCOUVERTE DE NOUVEAUX GISEMENTS. ON N'A QU'À SE RAPPELER LES LUTTES JURIDIQUES QUI SURGISSENT DANS LA FOULÉE DE CHAQUE DÉCOUVERTE IMPORTANTE POUR SE CONVAINCRE QUE C'EST LE CAS. CETTE COMPÉTITION S'ÉTEND AU DÉVELOPPEMENT ET COMPORTE, POUR LES PRODUCTEURS ASSOCIÉS, LES ACHATS, LE TRAITEMENT ET LA COMMERCIALISATION.

TOUTEFOIS, LA DEMANDE D'UN MARCHÉ NATIONAL S'APPLIQUE EN RÉALITÉ AUX SECTEURS MANUFACTURIER ET DES SERVICES PLUTÔT QU'AUX SOCIÉTÉS QUI EXPLOITENT LES RESSOURCES NATURELLES. LA THÉORIE SEMBLE ÊTRE LA SUIVANTE : LES PRODUCTEURS NATIONAUX CAPABLES D'ÊTRE COMPÉTITIFS À L'ÉCHELLE INTERNATIONALE SERONT FAÇONNÉS PAR LES COMPÉTITEURS AGRESSIFS ET LES CONSOMMATEURS EXIGEANTS AU PAYS. C'EST CE QUI SE PRODUIT LORSQUE LES BARRIÈRES COMMERCIALES SONT LEVÉES, D'OÙ LA DISPARITION DE MARCHÉS NATIONAUX SÛRS ET PROTÉGÉS.

BIEN QUE LES PRODUCTEURS CANADIENS DE MINÉRAUX AIENT DE TOUT TEMPS CONNU UN MARCHÉ LIBRE SEMBLABLE AU CANADA, ILS ONT CONNU LE PLUS DE SUCCÈS AU SEIN DU MARCHÉ LE PLUS DIFFICILE AU MONDE : LE MARCHÉ INTERNATIONAL DES PRODUITS DE BASE. C'EST ICI QU'ILS ONT DÉMONTRÉ QU'ILS ACCORDAIENT BEAUCOUP D'ATTENTION AUX CONSOMMATEURS, CE QUI NOUS AMÈNE À LA TROISIÈME STRATÉGIE.

L'ACCENT MIS SUR LES CONSOMMATEURS ET L'AMÉLIORATION PERMANENTE
DE LA QUALITÉ

AVEC LES PRODUITS ÉCHANGEABLES QUI NE SE DISTINGUENT PAS, LES PRODUCTEURS CANADIENS ONT ÉTABLI DES RELATIONS PERMANENTES AVEC D'IMPORTANTES CONSOMMATEURS ÉTRANGERS GRÂCE À UNE VALEUR ET À UN SERVICE SUPÉRIEURS. ILS PRÉVOIENT LES BESOINS ET PRÉPARENT D'AVANCE LE PRODUIT QUI SERA RECHERCHÉ.

À TITRE D'EXEMPLE, NOTRE USINE DE ZINC DE VALLEYFIELD PRODUIT NON SEULEMENT DES ALLIAGES DE GALVANISATION À LA DEMANDE PRÉCISE DE CLIENTS INDIVIDUELS, MAIS ENCORE A INVESTI DANS DES INSTALLATIONS POUR PRODUIRE DE LA GRENAILLE DE ZINC POUR LES LIGNES CONTINUES D'ÉLECTROGALVANISATION POUR LESQUELLES L'ENTREPRISE EST LE SEUL FOURNISSEUR DE PLUSIEURS ACIÉRIES.

LA COMMERCIALISATION A ÉTÉ ÉGALEMENT RENFORCÉE GRÂCE À DES MESURES OPPORTUNES DE PRESTATION ET À DES PROGRAMMES D'ASSURANCE DE LA QUALITÉ.

CES EFFORTS ONT REMPORTÉ TANT DE SUCCÈS QUE LES ACHETEURS AMÉRICAINS CONSIDÈRENT LES PRODUCTEURS CANADIENS COMME DES FOURNISSEURS NATIONAUX.

LA RECHERCHE DE LA QUALITÉ NE SE LIMITE PAS AUX PRODUITS. L'INDUSTRIE MINIÈRE CANADIENNE EST ÉGALEMENT UNE IMPORTANTE CONSOMMATRICE DE TECHNOLOGIE DE POINTE ET CONSACRE DES SOMMES CONSIDÉRABLES À LA RECHERCHE ET AU DÉVELOPPEMENT DE TRAITEMENTS ET DE PRODUITS QUI VISENT À AMÉLIORER LA QUALITÉ ET À RÉDUIRE LES COÛTS.

DANS LE DOMAINE DE L'EXPLORATION, ON RECHERCHE DE NOUVELLES MÉTHODES DE DÉTECTION, NOTAMMENT POUR PÉNÉTRER L'ÉCORCE À UNE PLUS GRANDE PROFONDEUR. TOUTE DÉCOUVERTE DANS CE DOMAINE POURRAIT FORT BIEN DÉCLENCHER LA DÉCOUVERTE DE NOUVEAUX GISEMENTS.

EN MATIÈRE DE PRODUCTION, DES PROGRÈS CONSIDÉRABLES ONT ÉTÉ RÉALISÉS : MICROSISMIQUE, CONCEPTION DES TROUS DE MINE, CHARGEUSES À PELLE ACTIONNÉES À DISTANCE, MODELISATION ET PRODUCTION ASSISTÉES PAR ORDINATEUR, INFORMATISATION DES USINES. CES PROGRÈS ONT AMÉLIORÉ CONSIDÉRABLEMENT LA PRODUCTIVITÉ DES MINES ALORS QUE LES USINES MODERNES SONT RÉGIES PAR ORDINATEUR ET SE DISTINGUENT PAS LEUR ABSENCE D'EMPLOYÉS.

LES OBJECTIFS COMPRENNENT UNE EXPLOITATION MINIÈRE PERMANENTE ET ENTIÈREMENT INFORMATISÉE. CETTE PREMIÈRE CONDITION POURRAIT ÊTRE RÉALISABLE À L'AIDE DE NOUVELLES DÉCOUVERTES COMME L'ABATTAGE AU PLASMA, MAIS LA DIVERSITÉ DES CONDITIONS GÉOLOGIQUES ET DE LA QUALITÉ DES MINÉRAIS RENDRA PROBABLEMENT LA DERNIÈRE CONDITION PEU RÉALISTE DANS LA PLUPART DES CAS.

CET INVESTISSEMENT DANS UNE CAPACITÉ SUPÉRIEURE ET DANS DES TECHNIQUES PLUS EFFICACES A ENGENDRÉ INÉVITABLEMENT UN MOINS GRAND NOMBRE D'EMPLOIS QUI EXIGENT TOUTEFOIS UNE COMPÉTENCE SUPÉRIEURE. LA BAISSSE DE L'EMPLOI QUI S'EST AMORCÉE AU COURS DES ANNÉES 1980 SE POURSUIT. LE BULLETIN MENSUEL (SEPTEMBRE 1991) SUR L'EMPLOI DANS L'INDUSTRIE MINIÈRE D'ÉNERGIE, MINES ET RESSOURCES (EMR) INDIQUE QUE L'EMPLOI DANS LES MINES MÉTALLIQUES CANADIENNES A CHUTÉ DE 45 000 EN MARS 1989 À 38 000 DEUX ANS PLUS TARD.

À TITRE D'EXEMPLE, LA BRUNSWICK MINING AND SMELTING S'EST LANCÉE DANS UN PROGRAMME DE COMPRESSION DES EFFECTIFS DE L'EXTRACTION MINIÈRE, 125 PERSONNES OU 12 %, ET DE LA FONDERIE, 100 PERSONNES OU 18 %. CETTE MESURE EST NÉCESSAIRE POUR QUE LA SOCIÉTÉ DEMEURE RENTABLE ET POUR JUSTIFIER LES INVESTISSEMENTS DE MISE EN VALEUR MINIÈRE ET D'AMÉLIORATION DES FONDERIES.

UN MILIEU QUI FAVORISE LES INVESTISSEMENTS

LA RÉACTION DE LA SOCIÉTÉ BRUNSWICK EST CARACTÉRISTIQUE DES EFFORTS PERMANENTS DÉPLOYÉS PAR L'INDUSTRIE MINIÈRE POUR ÊTRE COMPÉTITIVE.

TOUTEFOIS, LE RANG DU CANADA EN TANT QUE PRODUCTEUR MONDIAL DE MINÉRAUX A EU TENDANCE À GLISSER AU COURS DES DERNIÈRES ANNÉES EN RAISON DE L'EXPLOITATION DU CUIVRE AU CHILI, AUX É.-U ET AU PORTUGAL, DU ZINC AUX É.-U. ET EN AUSTRALIE, ET DE L'OR AUX

É.-U. L'EXTRACTION PAR SOLVANTS, QUI NE PEUT ÊTRE EMPLOYÉE DANS LES GISEMENTS CANADIENS, DANS D'AUTRES PAYS ET LA DÉCOUVERTE FRÉQUENTE DE GISEMENTS DANS LES PAYS EN DÉVELOPPEMENT ONT CONTRIBUÉ À CE DÉCLIN.

CE DERNIER PHÉNOMÈNE TRADUIT LA POLITIQUE DÉCLARÉE DE CERTAINS PAYS, COMME LE MEXIQUE ET LE CHILI, DE FAVORISER L'EXPLORATION ET L'EXPLOITATION MINIÈRES. DE RÉCENTS CHANGEMENTS À LEURS RÈGLEMENTS ONT AMÉLIORÉ LES CONDITIONS D'INVESTISSEMENT ÉTRANGER ET POURRAIENT NUIRE DAVANTAGE AU CANADA OÙ LES SOMMES ENGAGÉES DANS L'EXPLORATION SONT MAINTENANT INFÉRIEURES À CELLES DU MILIEU DES ANNÉES 1980.

J'ESPÈRE QUE LA STRATÉGIE D'OTTAWA POUR RELEVER LE DÉFI DE LA COMPÉTITION, QUI DOIT ÊTRE PRÉSENTÉE DANS LE DOCUMENT DE TRAVAIL INTITULÉ LA COMPÉTITIVITÉ MÈNE À LA PROSPÉRITÉ, RECONNAÎTRA LA CONTRIBUTION DE L'INDUSTRIE MINIÈRE À LA PROSPÉRITÉ ACTUELLE DU CANADA AINSI QUE SON RÔLE CRUCIAL POUR L'AVENIR.

AU COURS DES ANNÉES PASSÉES, NOS GOUVERNEMENTS ET NOTRE INDUSTRIE ONT OEUVRÉ EN ÉTROITE COLLABORATION. ILS ONT OUVERT UNE BONNE PART DE NOTRE PAYS. L'INDUSTRIE A TOUJOURS BESOIN D'UN APPUI, NOTAMMENT DANS LES RÉGIONS ÉLOIGNÉES.

D'UNE FAÇON GÉNÉRALEMENT EMPIRIQUE, L'EXPLOITATION MINIÈRE COMMENCE CINQ À SEPT ANS APRÈS LA DÉCOUVERTE DU GISEMENT. CE DÉLAI EST RAISONNABLE POUR UNE EXPLOITATION HABITUELLE QUI NE COMPORTE AUCUN PROBLÈME JURIDIQUE OU ENVIRONNEMENTAL ET QUI OFFRE UN RENDEMENT ÉLEVÉ. LE DÉLAI EST PLUS LONG POUR LES GISEMENTS DIFFICILES D'ACCÈS QUI REQUIÈRENT DES COURS ET DES MINERAIS SUPÉRIEURS OU UNE PLUS GRANDE EXTRACTION, S'ILS UN JOUR SONT EXPLOITÉS. LA MÊME CHOSE S'APPLIQUE AUX MINES QUI ONT BESOIN D'UNE INFRASTRUCTURE IMPORTANTE COMME DES ROUTES OU DES INSTALLATIONS PORTUAIRES.

LA FALCONBRIDGE POSSÈDE ACTUELLEMENT DEUX GISEMENTS QUI ONT BESOIN D'UNE INFRASTRUCTURE CONSIDÉRABLE : RAGLAN DANS L'UNGAVA ET IZOK LAKE DANS LES TERRITOIRES DU NORD-OUEST. MALGRÉ L'EXISTENCE DE 11 MILLIONS DE TONNES DE MINERAI DE NICKEL D'UNE TENEUR RELATIVEMENT ÉLEVÉE, LE GISEMENT RAGLAN, DÉCOUVERT IL Y A VINGT-CINQ ANS, A FAIT L'OBJET DE NOUVEAUX FORAGES EN 1988. SA RICHESSE A ÉTÉ ACCRUE. LE RÉCENT VOYAGE D'ESSAI D'UN NAVIRE À COQUE RENFORCÉE A DÉMONTRÉ QUE LA SAISON DE NAVIGATION PEUT ÊTRE ÉTENDUE DE PLUSIEURS MOIS. GRÂCE À CES NOUVELLES DONNÉES, LA FALCONBRIDGE A CONSACRÉ UN MONTANT SUPPLÉMENTAIRE DE 35 MILLIONS DE DOLLARS POUR PARACHEVER L'ÉTUDE DE FAISABILITÉ. LORSQUE TOUT SERA TERMINÉ, L'ENSEMBLE DU PROJET AURA CÔTÉ 500 MILLIONS DE DOLLARS ET AURA DURÉ PLUS DE 30 ANS.

SIS ENTRE YELLOWKNIFE ET COPPERMINE, LE GISEMENT D'IZOK LAKE A ÉTÉ DÉCOUVERT EN 1971. IL RENFERME 11 MILLIONS DE TONNES DE ZINC À 14,5 %, DE CUIVRE À 3 %, DE PLOMB À 1,5 % ET D'ARGENT (2 À 3 ONCES). IL Y A LONGTEMPS, CE GISEMENT AURAIT ÉTÉ EXPLOITÉ S'IL AVAIT ÉTÉ SITUÉ DANS UNE RÉGION MOINS ÉLOIGNÉE. ON N'A PU RÉGLER LE PROBLÈME DU TRANSPORT JUSQU'À PRÉSENT, BIEN QUE NOUS CROYIONS QUE LE GISEMENT SERA FINALEMENT EXPLOITÉ.

LA DÉGRADATION DE LA COMPÉTITIVITÉ GÉNÉRALE DE L'INDUSTRIE MINIÈRE CANADIENNE A ÉTÉ NETTEMENT INDIQUÉE PAR LES GRAPHIQUES DE 1987 ET 1990 DU RAPPORT D'EMR INTITULÉ FONDS ET APERÇU À COURT TERME (NOVEMBRE 1990). L'UNE DES PRINCIPALES RAISONS AVANCÉES EST LA VIGUEUR DU DOLLAR CANADIEN.

PUISQUE LES COURS DE LA PLUPART DES MÉTAUX ET DES MINÉRAUX SONT EXPRIMÉS EN DOLLARS AMÉRICAINS, LES RÉALISATIONS EN DOLLARS CANADIENS SONT CONSIDÉRABLEMENT TOUCHÉES PAR D'IMPORTANTES CHANGEMENTS DU TAUX DE CHANGE ENTRE LES DOLLARS CANADIEN ET AMÉRICAIN.

EN FAIT, LA BAISSSE DES RECETTES DUE AU TAUX DE CHANGE ANORMALEMENT GONFLÉ AU CANADA L'EMPORTE MÊME SUR LES EFFORTS LES PLUS ARDUS POUR RÉDUIRE LES FRAIS. LE RAFFERMISSEMENT DU DOLLAR AMÉRICAIN, COMME CELA A ÉTÉ LE CAS DEPUIS LES CINQ DERNIÈRES ANNÉES, A NUIT PARTICULIÈREMENT À LA COMPÉTITIVITÉ DU CANADA PAR RAPPORT À D'AUTRES PAYS PRODUCTEURS DE MINÉRAUX.

LA VIGUEUR DU DOLLAR CANADIEN EST LIÉE À LA POLITIQUE DES TAUX D'INTÉRÊT ÉLEVÉS QUE POURSUIT LA BANQUE DU CANADA AFIN DE JUGULER L'INFLATION ET DE REMBOURSER NOTRE DETTE NATIONALE CROISSANTE.

LES RÉPERCUSSIONS SUR L'EXTRACTION MINIÈRE EN TANT QU'INDUSTRIE CAPITALISTIQUE ONT ÉTÉ SÉVÈRES. EN HAUSSANT LE SEUIL DU TAUX DE RENDEMENT, DE NOUVEAUX INVESTISSEMENTS N'ONT PAS ÉTÉ EFFECTUÉS ET DES SOMMES N'ONT PAS ÉTÉ ENGAGÉES POUR LES EXPANSIONS, LA MODERNISATION ET LE SIMPLE ENTRETIEN.

DU POINT DE VUE DE L'INFLATION ET DES TAUX D'INTÉRÊT, LA SITUATION S'EST AMÉLIORÉE CETTE ANNÉE EN DÉPIT D'UNE HAUSSE DE LA DETTE NATIONALE. ON ESPÈRE QU'ELLE ANNONCERA UN RETOUR À UN TAUX DE CHANGE PLUS RÉALISTE AINSI [TERMES ILLISIBLES] ATTEINDRE LES OBJECTIFS PRÉVUS DE RÉDUCTION DE L'INFLATION.

UNE MAIN-D'OEUVRE COMPÉTENTE

EN PLUS DE SON PROGRAMME QUI VISE À METTRE AU POINT ET À UTILISER DES MÉTHODES ET DU MATÉRIEL PLUS EFFICACES AINSI QU'À CULTIVER SES MARCHÉS, L'INDUSTRIE MINIÈRE CANADIENNE A DÉCIDÉ DE TIRER PROFIT DE L'ÉNERGIE, DES CONNAISSANCES ET DES IDÉES DE SA MAIN-D'OEUVRE. PAR LEUR PARTICIPATION, LES EMPLOYÉS ONT DAVANTAGE DE LIBERTÉ D'ACTION ET PRÉPARENT AINSI LA VOIE VERS LA COMPÉTENCE DES TRAVAILLEURS, C'EST-À-DIRE UNE PLUS GRANDE FORMATION, PLUS DE POUVOIRS ET LE COURAGE DE LA DIRECTION DE SE FIER AU JUGEMENT ET

À L'ENGAGEMENT DE SES EMPLOYÉS.

LA TRANSITION NE SE FAIT PAS DU JOUR AU LENDEMAIN, MAIS LORSQUE CELA SERA FAIT, TOUS LES EMPLOYÉS AURONT L'IMPRESSION DE TRAVAILLER POUR EUX-MÊMES. EN OUTRE, LE RENDEMENT SERA MAXIMAL AU SEIN D'UNE ENTREPRISE GRÂCE À L'ENGAGEMENT ET AU DÉVOUEMENT DE SES EMPLOYÉS.

LES GENS FONT NATURELLEMENT OBSTACLE AU CHANGEMENT ET CETTE RÉACTION EST ACCENTUÉE LORSQUE LA CONJONCTURE N'EST PAS FAVORABLE. IL EST DIFFICILE DE SUSCITER UN ESPRIT DE COLLABORATION POUR ATTEINDRE CE BUT LORSQUE LE CHÔMAGE EST À LA HAUSSE ET QUE LES ENTREPRISES ÉPROUVENT DE LA DIFFICULTÉ À RÉDUIRE LES COÛTS. C'EST EN FAIT L'INVERSE QUI SE PRODUIT COMME EN TÉMOIGNENT LA LONGUE GRÈVE DE 18 MOIS À LA SOCIÉTÉ BRUNSWICK, QUI S'EST TERMINÉE EN MAI, AINSI QUE LES RÉCENTS CONFLITS DES POSTIERS ET DES FONCTIONNAIRES.

TOUTEFOIS, ON RECONNAÎT QU'IL FAUT AMÉLIORER L'ENSEMBLE DES RELATIONS ENTRE LES SYNDICATS ET LES SOCIÉTÉS MINIÈRES. L'ASSOCIATION MINIÈRE DU CANADA A ORGANISÉ PLUSIEURS RÉUNIONS PRÉPARATOIRES AVEC LES MÉTALLURGISTES UNIS D'AMÉRIQUE POUR DÉTERMINER LES DOMAINES DE COLLABORATION COMME LA FORMATION PROFESSIONNELLE ET LA SÉCURITÉ. LES DEUX ORGANISMES APPUYAIENT L'INITIATIVE DE L'HONORABLE JOHN MACDOUGALL, ANNONCÉE EN JUIN, EN FAVEUR DE L'ÉTUDE DES QUESTIONS RELATIVES À LA FORMATION DES EMPLOYÉS DU

SECTEUR MINIER PAR EMPLOI ET IMMIGRATION CANADA.

SELON STATISTIQUES CANADA, LE REVENU HEBDOMADAIRE MOYEN DANS LE SECTEUR MINIER EST LE PLUS ÉLEVÉ PARMI CEUX DE TOUTES LES CATÉGORIES INDUSTRIELLES AU COURS DES DIX DERNIÈRES ANNÉES. CE PHÉNOMÈNE TRADUIT UN GESTE PROBANT DE LA PART DE L'INDUSTRIE ENVERS UNE RÉPARTITION ÉQUITABLE DES AVANTAGES DUS À SON SUCCÈS.

POUR CONTINUER D'AGIR AINSI, LES SOCIÉTÉS MINIÈRES DOIVENT DEMEURER RENTABLES ET POSSÉDER LA MARGE DE MANOEUVRE QUI LEUR PERMETTRA DE S'ADAPTER AUX NOUVELLES TECHNIQUES ET AUX CHANGEMENTS D'EXPLOITATION. CELA SERA POSSIBLE AU FUR ET À MESURE OÙ NOS EMPLOYÉS ET LEURS SYNDICATS PARTAGERONT UN OBJECTIF COMMUN AVEC LA DIRECTION.

DANS LEUR ENSEMBLE, CES MESURES INDIQUENT QUE L'INDUSTRIE MINIÈRE CANADIENNE A SUIVI LES STRATÉGIES QUI SONT JUGÉES CRUCIALES POUR SA COMPÉTITIVITÉ INTERNATIONALE.

L'ENVIRONNEMENT

NOTRE INDUSTRIE A UN AUTRE OBSTACLE À FRANCHIR : POURSUIVRE SES ACTIVITÉS EN RESPECTANT L'ENVIRONNEMENT.

PAR LA NATURE DE SES ACTIVITÉS, L'INDUSTRIE MINIÈRE A DES RÉPERCUSSIONS SUR L'ENVIRONNEMENT. DE PLUS, BEAUCOUP DE MÉTAUX (TRAITEMENT, EMPLOI ET ÉLIMINATION) SONT À L'ORIGINE DE PROBLÈMES DE SANTÉ ET PROFESSIONNELS.

AFIN DE MINIMISER CES RÉPERCUSSIONS SUR L'ENVIRONNEMENT, ON POURRAIT METTRE L'ACCENT SUR DES MINES DE PLUS PETITE TAILLE COMME CELLE DE KENNECOTT À FLAMBEAU (WISCONSIN) OÙ LE MINÉRAI DOIT ÊTRE EXTRAIT DE FAÇON SÉLECTIVE ET TRANSPORTÉ À L'EXTÉRIEUR DE L'ÉTAT POUR ÊTRE TRAITÉ. DE CETTE FAÇON, ON ÉVITE LE PROBLÈME ET LES COÛTS D'UN CONCENTRATEUR ET DES STÉRILES.

EN FAIT, LES CONCENTRATEURS ET LES FONDERIES DE MINES "ÉCOLOGIQUES" POURRAIENT ÊTRE CERTAINS DES ATOUTS LES PLUS PRÉCIEUX DE NOTRE INDUSTRIE.

PUISQUE L'ON ACCORDE BEAUCOUP D'IMPORTANCE À LA RÉDUCTION DES DÉCHETS, LES MÉTAUX SE PRÊTENT BIEN AU RECYCLAGE ET LE PRODUIT RÉCUPÉRÉ EST COMPARABLE À CELUI DE LA PRODUCTION PRIMAIRE. IL S'AGIT D'UN AVANTAGE CONSIDÉRABLE ET LES MÉTAUX POURRAIENT BIEN ÊTRE LA RESSOURCE RENOUVELABLE SUPRÊME.

IL Y A DEUX ANS, UN SONDAGE MENÉ PAR L'ASSOCIATION MINIÈRE DU CANADA POUR CONNAÎTRE LES ATTITUDES ET LES IMPRESSIONS DES CANADIENS À L'ÉGARD DE L'INDUSTRIE MINIÈRE A CONFIRMÉ QUE L'EXTRACTION MINIÈRE EST JUGÉE COMME UNE IMPORTANCE SOURCE DE POLLU-

TION ET A INDIQUÉ QUE LE PUBLIC IGNORAIT LES RÉALISATIONS DE L'INDUSTRIE EN MATIÈRE D'ENVIRONNEMENT OU SES ENGAGEMENTS.

L'ASSOCIATION A RÉAGIT PAR UNE POLITIQUE ENVIRONNEMENTALE QUI A ÉTÉ APPROUVÉE PAR TOUTES LES PRINCIPALES SOCIÉTÉS MINIÈRES CANADIENNES AINSI QUE PAR UN GUIDE DE PRATIQUES ÉCOLOGIQUES QUI VISE TOUS LES ASPECTS DE L'EXPLOITATION, SOIT DE L'EXPLORATION À LA FERMETURE DE MINES.

ON A ÉGALEMENT RECONNU L'URGENCE D'EFFORTS COORDONNÉS DE L'INDUSTRIE À L'ÉCHELLE INTERNATIONALE. LES PROBLÈMES NE SE LIMITENT PAS À UN PAYS. LORSQU'ILS SURGISSENT DANS D'AUTRES PAYS, ILS ONT TENDANCE À ÊTRE RAPIDEMENT CERNÉS ET À ÊTRE RÉGLÉS. BON NOMBRE DE CES PROBLÈMES POURRAIENT ÊTRE MIEUX RÉGLÉS À L'AIDE D'UNE DÉMARCHE PLANÉTAIRE ET AU DÉBUT DE LEUR APPARITION.

EN CONSÉQUENCE, ON A CRÉÉ CETTE ANNÉE LE CONSEIL INTERNATIONAL DES MINES ET DE L'ENVIRONNEMENT (CIME) AVEC LE CONCOURS DE L'ASSOCIATION MINIÈRE DU CANADA.

DIRIGÉ PAR UN CONSEIL COMPOSÉ DE CADRES SUPÉRIEURS PROVENANT DE VINGT SOCIÉTÉS MINIÈRES INTERNATIONALES, LE CONSEIL A SONT SIÈGE À OTTAWA. IL CONSTITUE UNE TRIBUNE INTERNATIONALE D'IGNÉ DE FOI EN MATIÈRE D'ENVIRONNEMENT ET DE SANTÉ ET REPRÉSENTE UNE MESURE SUPPLÉMENTAIRE DE LA PART DE L'INDUSTRIE POUR TROUVER UN JUSTE ÉQUILIBRE ENTRE DES VALEURS ÉCONOMIQUES, SOCIALES ET ÉCOLOGIQUES

OPPOSÉES.

CONCLUSION

LES INDUSTRIES CANADIENNES DES RESSOURCES NATURELLES ONT TOUJOURS ÉTÉ À LA BASE DE NOTRE NIVEAU DE VIE ÉLEVÉ ET DE NOTRE BALANCE COMMERCIALE POSITIVE.

NOUS ENTENDONS TROP SOUVENT QUE POUR SURVIVRE ET RÉUSSIR LE CANADA DOIT CRÉER UNE INDUSTRIE MANUFACTURIÈRE COMPÉTITIVE EN SUIVANT LA DÉMARCHE DE L'ALLEMAGNE ET DU JAPON. C'EST PEUT-ÊTRE VRAI MAIS CELA NE SIGNIFIE PAS QUE L'EXPLOITATION MINIÈRE N'EST PLUS IMPORTANTE. EN FAIT, LA THÉORIE DE L'INDUSTRIE "NAISSANTE" A ÉTÉ REJETÉE PAR L'HONORABLE MICHAEL WILSON, MINISTRE DE L'INDUSTRIE, DES SCIENCES ET DE LA TECHNOLOGIE DANS UNE LETTRE QU'IL A ADRESSÉE LE MOIS DERNIER À M. GEORGE MILLER. IL A ÉCRIT CE QUI SUIT :

NOTRE SECTEUR DES RESSOURCES A TOUJOURS ÉTÉ LE PLUS EXPOSÉ AUX FORCES DE LA COMPÉTITION INTERNATIONALE ET DEVAIT DONC ÊTRE INNOVATEUR POUR SURVIVRE ET PROSPÉRER. JE VOULAIS SIGNALER QUE NOUS NE POUVONS DÉPENDRE UNIQUEMENT DE NOS RESSOURCES NATURELLES POUR GARANTIR NOTRE BIEN-ÊTRE. COMME VOUS LE SAVEZ FORT BIEN, BEAUCOUP DE CANADIENS CROIENT FERMEMENT QUE NOS RESSOURCES NOUS PROCURENT UN NIVEAU DE VIE ÉLEVÉ. C'EST CETTE ATTITUDE AUTANT QU'UNE AUTRE QUI MENACE NOTRE PROSPÉRITÉ ULTÉRIEURE. EN FAIT, LE

SUCCÈS DU SECTEUR MINIER EST ATTRIBUABLE DAVANTAGE À L'INGÉNIO-
SITÉ DES CANADIENS QU'À LA RICHESSE DE NOS RESSOURCES NATURELLES.

(TRADUCTION)

GRÂCE À UN CADRE D'ACTION FAVORABLE DES POUVOIRS PUBLICS, L'IN-
DUSTRIE MINIÈRE CONTINUERA D'UTILISER CETTE INGÉNIO-
SITÉ DES CANADIENS ET DE JOUER UN RÔLE DE PREMIER PLAN AU SEIN D'UNE
ÉCONOMIE CANADIENNE QUI CHERCHE À ÊTRE COMPÉTITIVE.

RECOMMANDATIONS

J'AI DÉJÀ MENTIONNÉ LES EFFORTS DÉPLOYÉS PAR DES PAYS EN DÉVELOP-
PEMENT, COMME LE CHILI ET LE MEXIQUE, POUR ENCOURAGER L'EXPLORA-
TION ET L'EXPLOITATION MINIÈRES PAR DES SOCIÉTÉS ÉTRANGÈRES, Y
COMPRIS CANADIENNES. CE PHÉNOMÈNE SE PRODUIT À UN MOMENT OÙ LE
CANADA DOIT DÉPLOYER DAVANTAGE D'ÉNERGIE POUR ACCROÎTRE SES
PROPRES RÉSERVES.

MESSIEURS LES MINISTRES, LES MÉMOIRES QUI VOUS ONT ÉTÉ PRÉSENTÉS
PAR L'ASSOCIATION DES PROSPECTEURS ET DES ENTREPRENEURS ET PAR
L'ASSOCIATION MINIÈRE METTENT SÉRIEUSEMENT EN DOUTE L'ATTRAIT
RELATIF QUE REPRÉSENTE AUJOURD'HUI LE CANADA COMME LIEU PROPICE À
L'EXPLORATION ET À L'EXPLOITATION MINIÈRES.

JUSQU'À PRÉSENT, LES PREUVES SONT MALHEUREUSEMENT FRAGMENTAIRES ET QUELQUE PEU ANECDOTIQUES. EN CONSÉQUENCE, J'AIMERAIS PROPOSER QU'UN GROUPE DE TRAVAIL, COMPOSÉ DE HAUTS FONCTIONNAIRES FÉDÉRAUX ET PROVINCIAUX ET DE CADRES SUPÉRIEURS PROVENANT D'ASSOCIATIONS NATIONALES ET PROVINCIALES, SOIT CHARGÉ DE RECUEILLIR DES DONNÉES FIABLES SUR LES TENDANCES RÉCENTES SUR LES DÉPENSES D'EXPLORATION ENGAGÉES PAR LES SOCIÉTÉS CANADIENNES AU CANADA ET À L'ÉTRANGER. L'ÉTUDE DEVRAIT ÉGALEMENT EXAMINER QUELLE EST L'IMAGE VÉHICULÉE PAR LE CANADA PAR RAPPORT À D'AUTRES PAYS EN MATIÈRE DE FACTEURS QUI INFLUENT SUR LES DÉPENSES COMME LES POSSIBILITÉS GÉOLOGIQUES, LES RISQUES POLITIQUES ET LES COÛTS. ON DOIT CHERCHER À RECUEILLIR AUTANT QUE POSSIBLE DES DONNÉES OBJECTIVES SUR L'ÉVOLUTION DES INVESTISSEMENTS, DES RÈGLEMENTS ET DES POLITIQUES À L'ÉTRANGER.

L'INDUSTRIE ET LES POUVOIRS PUBLICS ONT TOUS DEUX BESOIN D'UNE SOLIDE BASE DE DONNÉES AFIN DE COLLABORER EFFICACEMENT AU RÈGLEMENT DES QUESTIONS DE PRINCIPE CRUCIALES QUI ONT ÉTÉ SOULEVÉES. JE SUIS PERSUADÉ QUE L'INDUSTRIE MINIÈRE SERA PRÊTE À PARTICIPER À UN GROUPE DE TRAVAIL QUI CRÉERA UNE BASE DE DONNÉES DE CE GENRE.

48TH ANNUAL MINES MINISTERS' CONFERENCE

Notes for an Address by John MacDougall
on Behalf of the Honourable Jake Epp
Minister of Energy, Mines and Resources
Canada

John MacDougall

HALIFAX, Nova Scotia
September 22-24, 1991

VEUILLEZ NOTER

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Speech

91/85

NOTES FOR AN ADDRESS
BY
JOHN MacDOUGALL
ON BEHALF OF
THE HONOURABLE JAKE EPP
MINISTER OF ENERGY, MINES AND RESOURCES CANADA
AND MEMBER OF PARLIAMENT FOR PROVENCHER

TO

48TH ANNUAL MINES MINISTERS' CONFERENCE

HALIFAX, NOVA SCOTIA

SEPTEMBER 23, 1991

Check against delivery

Ladies and Gentlemen:

I'm very pleased to be invited here today to help set the stage for the 48th annual Mines Ministers' Conference.

This morning, I hope to provide a national perspective on the theme of this year's conference — one which focuses our attention on the many different aspects and the importance of the mining industry in Canada.

I want to congratulate Nova Scotia for creating a new and expanded workshop format. Over the next two days participants will tackle issues ranging from declining student enrolment in mining sciences to global trade and marketing challenges.

Why have these themes emerged as pivotal to the mineral industry in Canada? I think it's very clear. These are the very building blocks on which a competitive, prosperous industry can be built.

And it's also clear that to create and maintain a world class competitor, all players involved in the industry must compete to the best of their ability. That's why I'm particularly pleased to see organized labour well represented here, along with their industry and government partners.

I would first like to take a few moments to place this conference into a context — one that is particularly meaningful given the changes introduced by Nova Scotia this year.

Initially, only provincial ministers of mines were involved in this annual gathering. The federal minister was invited to attend only a small part, to listen to concerns and information the provinces brought to the table.

Today, the federal government's participation is much expanded. Now, there is a real opportunity for both levels of government to sit down, define issues and to come up with solutions together — a far cry from the old days when these sessions resulted in frustration at the status quo and little motivation for change.

The constitutional changes in 1982 and events since, have resulted in a strengthening of provincial rights in many areas, including resource management. I think this conference is an important example of how federal and provincial ministers, charged with the responsibility of managing an important natural resource, can go through the growing pains of a new relationship and come out at the end much stronger.

We're better together than apart - a view which we all need to keep in mind as we embark on an unprecedented dialogue in the coming months about where this country is going.

I would venture to say that everyone in this room has benefitted to some extent from a concrete example of joint federal-provincial cooperation.

I'm talking, of course, about mineral development agreements. As part of the government's policy of regional economic development, MDAs across the country have assisted all phases of the industry — from exploration to production. I'm pleased to report that COOPERATION agreements on minerals have been signed with three Atlantic Canada provinces, and in Prince Edward Island, mineral activities are being conducted under another agreement.

In the west, PARTNERSHIP agreements have been negotiated with Saskatchewan and Manitoba, with the two other western provinces close to signing.

In central Canada, a new Ontario agreement is almost finalized. And I might add that discussions are also underway for additional regional mineral development programs for some regions in Quebec.

The federal government has allocated a significant amount of funding to these agreements. Its commitment is clear. Almost everywhere in Canada, minerals have emerged as one of our most important regional development priorities.

The agreements also ensure that the work of the scientific side of our department is in tune with provincial and territorial priorities. In short, these agreements help set the stage for continued prosperity of the industry.

Before prosperity, however, come challenges. There's no doubt that all of us here today know that the industry has always been confronted with these. The world is becoming more complex. Competing values dominate the public agenda. Natural resource industries inevitably feel the effects.

Where once the industry had only to worry about the rise and fall of commodity prices, the changing face of international markets, and the investment climate of the day, it is having to cope with new values.

Many competing users claim rights to the land. No one wants to see environmental values traded in their entirety for economic development. The concept of sustainable development ensures that both values can be accommodated, that the world is not black and white, that compromises and agreements can and are being made every day. Environment and the economy must be, and can be, linked.

Industries that respond positively to this new direction will be rewarded in the marketplace. As Dr. Peter Tarasoff, past president of the Canadian Institute of Mining, Metallurgy and Petroleum, has said, "Environmental responsibility is becoming one of the hallmarks of business excellence, and business excellence will ultimately mean survival and success."

Some companies may think that they can avoid tough environmental regulations by moving their operations to other parts of the world. To its credit, the Mining Association of Canada has called upon its members to follow the same practises internationally as they would in Canada.

Pressure is mounting on governments to set aside more of our lands and waters to protect representative samples of Canadian ecosystems.

The Green Plan has proposed that some 12 per cent of our landmass should be so protected. That such a measure will impact on the mining industry is obvious. I am aware that it is of deep concern to many in this room.

Through the Mineral and Energy Resource Assessment process, which applies to land in northern Canada, our department ensures that mineral and energy resource values are factored into the equation. We need to make sure that these values are considered in the planning process from the outset. These assessments have had significant impact on park planning. Some of you may not be aware that they have resulted many times in modifications to proposed park boundaries. In some instances, new locations have actually been chosen for the proposed parks.

I hope that everyone at this conference has the opportunity to look at the land use maps which have been produced by the Mineral Industry Land Use Committee and our department. Our department will continue to work closely with MILUC and to support its ongoing work.

The maps provide a quick visual summary of the amount of land currently available to the mining industry for exploration.

But they also indicate that an increasing portion of our landmass is either off limits to exploration or requires special arrangements, for example on native lands.

I might say here that the environment issue seems to present labour and management with an opportunity for joint action. Throughout the advanced industrial world, worker and employer groups are recognizing that the environment is an issue of mutual concern.

Among other things, they are considering the possible inclusion of "green clauses" in their collective agreements. Here in Canada, the steel companies and the United Steel Workers have established an environment task force to look at ways the two partners can address the issue.

I note as well that INCO and the Steel Workers have established a joint committee on the environment. Perhaps **Mr. Gerard** can tell us more about this important initiative.

At this point, I would like to up-date you on another issue relating to the environment which many of you have been closely following over the past two years. I am referring to the deductibility of payments into government-mandated mine reclamation funds.

After the Mines Ministers' conference of last year, Mr. Epp wrote to Michael Wilson, Minister of Finance at that time, expressing support for the position taken on the deductibility issue by the minerals and metals government/industry task force.

We still support that position and I want to tell you that we have raised the matter with the new Minister of Finance, Don Mazankowski, reiterating that we support an amendment to the Income Tax Act which will allow a meaningful change for the industry in this regard. We are looking forward to further discussion with him on this point. In the interim, I would welcome hearing the views of the mining community.

I would like to talk for a moment now about the role natural resources play in this country. While they have been expected to contribute greatly to the economic and social well-being of Canadians, their importance sometimes does get lost from view.

Mining, for example, is an industry that employs nearly 400 000 people, from coast to coast, from the 49th parallel to the Arctic. It is the backbone of regional economies across Canada — more than 100 of them, with a combined population of nearly 1 million people.

Many more communities depend on spin-offs from the industry - transportation, manufacturing and service industries owe their survival to the resources extracted from the ground. And last year, mineral exports exceeded mineral imports by \$11 billion, enabling Canadians to buy much of what they need from abroad.

Mining has also played a unique role in the shaping of our country's history. It is inexorably linked to the exploring and settling of our earliest pioneers. Think about the part the Gold Rush played in the heyday years in the Yukon Territory and in the eventual exodus of these disappointed fortune seekers who settled more permanently in B.C. and Alberta in the early part of this century.

And almost 150 years ago, the earliest surveyors and map makers of the Geological Survey of Canada were driven by a strong desire to catalogue and portray visually the resources buried in the ground below. At that time, a pick and shovel and a gold pan were used to find minerals.

Today, although these historic methods may still be used by the lone prospector, he and the industry also use a host of high technology methods.

Much of the necessary baseline geoscientific data is obtained through remote sensing, using aircraft and satellites. When an orebody is found and developed, the industry employs sophisticated mining and processing technology to extract the minerals.

The common view of mining is that it is dirty and low tech, but the very opposite is true. Today's mining industry has a host of high tech applications - computerized mine design and planning, remote control mining, highly efficient computerized vehicle dispatching systems, precise explosives techniques, computer-controlled metallurgical processes, and many more.

The mining industry has to be high tech if it is to compete. There is no choice. It needs to avail itself of state-of-the-art technology to be successful in today's marketplace.

Mining is an intensely Canadian activity. There isn't a province or territory in the land where mineral resources are not found. And as the Speech from the Throne recently highlighted, we need industrial activities such as these to link ourselves together.

Industries that cut across regional boundaries, but which contribute so much to regional and national economies, must be encouraged to strengthen and to grow, for they are providing a much needed mainstay in this critical time in our history.

The mining industry is accomplishing this task now. And a more prosperous industry — one which provides employment, community stability and a healthy tax base can do this even better.

The federal Cabinet is looking for ways to increase Canadian competitiveness throughout the entire business community. I'm sure that many of you have heard about the prosperity initiative that we plan to undertake soon.

We are planning to consult with industries such as yours on the very themes you will be discussing during this conference. During the up-coming consultations, we will be asking you to identify the stumbling blocks to success, how you can help yourselves do better and how we, as Canadians, can become more competitive in the global arena.

I encourage you to make your voice heard through this process. But let's not fool ourselves either. I know that governments will be criticized for making laws that render your lives more difficult.

Minister Epp recently met with mining industry leaders in Vancouver. They told him about the challenges the industry faces from a western perspective. In B.C., not surprisingly, land use and access figured prominently on their list of issues.

In meetings with a similar cross-section of industry executives from central Canada in the near future, I expect a similar list of challenges to emerge. I anticipate, too, that the effects of environmental legislation and regulations may top the list.

Clearly, a new environmental thrust has emerged from the recent round of court cases in Canada. Those such as the Oldman River in Alberta and the Rafferty Alameda Dam in Saskatchewan have necessitated a stronger federal hand in the environmental review process.

But you and I know that the public demands no less. They are losing confidence in the ability of both levels of governments to meet their environmental standards. There has to be a strong statement of intent.

The federal EARP guidelines order reflects federal will to follow this intent. And while it may seem to be making your lives more difficult right now, I'm confident that the frustrations with some overlap and duplication that some of you have told me about, will be short-lived.

As you know, environment ministers have agreed that overlap and duplication has to be prevented. But the process is going through a transition and some growing pains are clearly being felt.

The process will become more streamlined over time, and the current rough spots will be identified and straightened out. I have heard your message on that score and I want to ensure that the process allows both good regulation, and fair and efficient administration. If you continue to have problems, I want to hear about them.

Over the next two days, as you discuss the challenges confronting the industry, keep in mind that the Canadian mining industry is one of the most productive and efficient in the world. Strong and vibrant, it has achieved a central place in the Canadian economy. So, we should not lose perspective regarding its future.

Canada is a country with vast mineral exploration potential. It has been blessed with large reserves of minerals that we know about already, and a high probability of significantly more. It has a skilled labour supply and an existing infrastructure which supports development of our natural resources.

It also has built-in shortcomings. These we can do nothing about. The reality is that we have a very small population spread over a huge landmass. This fact makes certain operating and transportation costs comparatively higher than some of our competitors.

So these facts demand that companies, to remain competitive in the global marketplace, must make their investment decisions very carefully. I know that mining companies base their exploration decisions primarily on factors such as a country's mineral potential and political stability, and in these terms I believe Canada still ranks favourably as a place to invest.

At the same time, it is obvious that a few clouds have appeared on the horizon. I'm sure that we will hear the Mining Association of Canada and the Prospectors and Developers Association talking about federal government policies which have affected their position in the global marketplace. I look forward to these comments. I have already heard some of them in my meetings with industry executives, and I expect that I will hear them again today.

Turning now to another issue confronting the mining industry, and one which will be discussed this afternoon, is the matter of human resource management, and specifically the question of education and training.

In recent years, Canadians have been shocked to learn the extent of functional illiteracy in this country. Despite the enormous sums that Canadians invest in education, there is still too much of our population whose literacy and numeracy skills are below what they need to manage their daily affairs.

Over half of the new jobs created in this decade will require more than twelve years of education and training. Yet some 60 per cent of today's work force possess no more than a high school education.

Generally speaking, Canadian business and industry have neglected the training issue. Overall, the private sector spends about \$1.4 billion on formal training. This is less than half of that spent in the U.S. on a per employee basis, and a fifth of that spent in Japan.

German employers spend about \$630 per worker on training annually. By contrast, a Statistics Canada survey showed that Canadian firms spend roughly \$160 per worker.

Given this data, it is not hard to understand why the education and training issue is a major concern of the federal government. If we are to meet the challenges of a technology-driven economy, all of us — especially employers — must do considerably more. We must not only upgrade the skills of the work force but also foster a learning culture which encourages lifelong education and training.

I know that human resource issues have been a focus of interest of the Mining Association for some time. Representatives from MAC as well as from the United Steel Workers are participating in a major study of human resources in the mining industry launched earlier in the summer by the Minister of Employment and Immigration.

The results of this important collaborative effort should be ready next year. The document could provide a blueprint for human resource development in the industry for the next several years.

In closing, I would encourage you to enter into your workshop discussions with many of today's challenges to the industry in mind.

Think, too, of the ways your discussions can focus on changes that will encourage future industry prosperity, ways that can be incorporated into the national prosperity report. Use this means to make your voice heard. You have a strong voice already, but it can only get stronger as you link your ideas with your colleagues and partners in government.

48E CONFÉRENCE ANNUELLE DES MINISTRES DES MINES

Notes pour une allocution de John MacDougall
au nom de M. Jake Epp,
Ministre de l'Énergie, des Mines et des Ressources
du Canada

John MacDougall

Halifax (Nouvelle-Écosse)
Du 22 au 24 septembre 1991

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Ottawa (Ontario) K1N 8V5



Discours

91/85

NOTES POUR UNE ALLOCUTION
DE
JOHN MacDOUGALL
AU NOM DE
M. JAKE EPP,
MINISTRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES DU CANADA
ET DÉPUTÉ DE PROVENCHER

DEVANT LA

48^e CONFÉRENCE ANNUELLE DES MINISTRES DES MINES

HALIFAX (NOUVELLE-ÉCOSSE)

23 SEPTEMBRE 1991

S'en remettre au contenu verbal

Mesdames et Messieurs,

Je suis très heureux d'avoir été invité ici à contribuer à la mise en route de la 48^e Conférence annuelle des ministres des Mines.

Ce matin, j'ai l'intention d'aborder dans une perspective nationale le thème de la conférence de cette année, un thème qui polarise notre attention à bien des égards et qui revêt de l'importance pour l'industrie minière du Canada.

Je voudrais tout d'abord féliciter la Nouvelle-Écosse d'avoir mis sur pied une formule d'ateliers renouvelée et élargie. Au cours des deux prochains jours, les participants se pencheront sur des questions allant de la diminution du nombre d'inscriptions en sciences minières aux Oobstacles posés au commerce et à la commercialisation à l'échelle internationale.

Pourquoi ces thèmes sont-ils ressortis comme étant cruciaux pour l'industrie minière au Canada? La réponse est très nette. Il s'agit en réalité des blocs de construction sur lesquels peut être édifiée une industrie prospère et concurrentielle.

Il est vrai également que pour devenir et demeurer un concurrent de classe mondiale, il faut que tous les intervenants de l'industrie donnent le meilleur d'eux-mêmes. C'est pourquoi je suis particulièrement heureux de voir le monde syndical bien représenté ici, à côté de ses partenaires de l'industrie et du gouvernement.

Permettez-moi tout d'abord de prendre quelques instants pour situer cette conférence en contexte, un contexte d'autant plus significatif compte tenu des changements apportés par la Nouvelle-Écosse cette année.

Au début, seuls les ministres provinciaux des Mines participaient à cette rencontre annuelle. Le ministre fédéral était invité à assister à une petite partie seulement de la rencontre pour entendre les doléances et recueillir l'information que les provinces soumettaient aux participants.

Maintenant, la participation du gouvernement fédéral a pris beaucoup d'ampleur. Désormais, les deux paliers de gouvernement ont véritablement l'occasion de s'asseoir pour cerner les questions et imaginer ensemble des solutions; nous sommes loin du temps où ces séances débouchaient sur un sentiment de frustration devant le statu quo et une volonté peu affirmée de changement.

Les changements constitutionnels de 1982 et les événements qui ont suivi ont renforcé sensiblement les droits des provinces dans bien des secteurs, y compris la gestion des ressources. Je pense que cette conférence illustre bien de quelle façon les ministres fédéral et provinciaux chargés de la responsabilité de gérer une ressource naturelle importante, peuvent surmonter les malaises de croissance d'une nouvelle relation et en sortir beaucoup plus forts.

Nous sommes mieux ensemble que séparés, voilà un point de vue que nous devons tous garder à l'esprit au moment où nous entrons dans une ronde de pourparlers sans précédent au cours des prochains mois au sujet du devenir de ce pays.

J'irais même jusqu'à dire que chacun des participants rassemblés ici a profité d'une manière ou d'une autre d'un exemple concret de collaboration fédérale-provinciale.

Je fais allusion ici, bien sûr, aux ententes sur l'exploitation minière. Fruits de la politique gouvernementale de développement économique régional, partout au pays, les ententes sur l'exploitation minière sont venues en aide à l'industrie à toutes les phases - de l'exploration à la production. Je suis heureux de vous signaler que des ententes de COOPÉRATION touchant les minéraux ont été conclues avec trois provinces de l'Atlantique, tandis qu'à l'Île-du-Prince-Édouard, les activités touchant le domaine minéral sont menées dans le cadre d'une autre entente.

Dans l'Ouest, des ententes de PARTENARIAT ont été négociées avec la Saskatchewan et le Manitoba; quant aux deux autres provinces de l'Ouest, elles s'apprêtent à les signer.

Au centre du Canada, on en est presque venu à une entente avec l'Ontario. J'ajouterais que des discussions sont actuellement en cours au sujet d'autres programmes de développement minéral dans certaines régions du Québec.

Le gouvernement fédéral a réservé d'importantes sommes d'argent pour ces ententes. Car son engagement est clair; partout au Canada, les minéraux sont devenus l'une de nos principales priorités au chapitre du développement régional.

Les ententes garantissent également que le travail des scientifiques de mon ministère s'harmonise avec les priorités provinciales et territoriales. Bref, ces ententes préparent la voie à la prospérité soutenue de l'industrie.

Mais avant la prospérité viennent les obstacles à surmonter. Nul n'ignore aujourd'hui que l'industrie a toujours été confrontée à des problèmes. Le monde devient de plus en plus complexe. Le programme d'intervention publique doit se partager entre des valeurs qui viennent en concurrence. Les industries des ressources naturelles en ressentent forcément les effets.

Si autrefois l'industrie n'avait qu'à se préoccuper de la montée et de la chute du cours des produits, de l'évolution des marchés internationaux, et du climat d'investissement de l'heure, elle a aujourd'hui à faire face à de nouvelles valeurs.

Bien des utilisateurs en concurrence prétendent avoir des droits sur les terres. Personne ne veut voir toutes les valeurs environnementales sacrifiées sur l'autel du développement économique. La notion de développement durable part du principe que les deux types de valeurs peuvent avoir droit de cité, que le monde n'est pas blanc et noir et que des compromis et des accords peuvent être atteints tous les jours et le sont effectivement. L'environnement et l'économie peuvent et doivent être unis.

Les industries qui répondent de façon positive à cette nouvelle orientation trouveront leur récompense sur le marché. Comme l'a déclaré M. Peter Tarasoff, ancien président de l'Institut canadien des mines, de la métallurgie et du pétrole, «la responsabilité environnementale devient l'une des marques de commerce de l'excellence commerciale, et l'excellence commerciale peut ultimement vouloir dire survie et réussite.»

Certaines entreprises peuvent penser qu'elles pourraient contourner des règlements environnementaux sévères en démenageant leurs exploitations vers d'autres parties du monde. Il faut dire au crédit de l'Association minière du Canada qu'elle a incité ses membres à suivre à l'échelle internationale les mêmes pratiques qu'au Canada.

On insiste de plus en plus auprès des gouvernements pour qu'ils réservent davantage de territoires et de nappes d'eau à la protection des échantillons représentatifs des écosystèmes canadiens.

Dans le Plan vert, il a été proposé que 12 % de la masse continentale soit protégée. Il est évident qu'une telle mesure aura des répercussions sur l'industrie minière; je crois savoir que pour bon nombre d'entre vous ici ce soir, cela est un sujet de profonde inquiétude.

Par l'entremise de son processus d'évaluation des ressources économiques, énergétiques et minérales, mon ministère s'assure que les valeurs des ressources énergétiques et minérales deviennent des facteurs de l'équation. Nous devons nous assurer dès le départ que ces valeurs sont prises en compte dans le processus de planification. Ces évaluations ont eu d'importantes répercussions sur la planification de la délimitation des parcs. Certains d'entre vous n'êtes peut-être pas au courant qu'elles ont bien souvent résulté en des modifications à l'emplacement projeté de parc.

J'espère que tous ceux qui participent à cette conférence auront l'occasion de jeter un coup d'œil aux cartes sur l'utilisation des terres dressées par le comité d'utilisation des terres de l'industrie minière ainsi que mon ministère. Mon ministère continuera de travailler étroitement en collaboration avec ce comité et à appuyer son travail en cours.

Les cartes permettent de visualiser rapidement la superficie dont dispose actuellement l'industrie minière à des fins d'exploration.

Elles montrent également qu'une partie de plus en plus grande de notre masse territoriale échappe aux possibilités d'exploration, ou exige des mesures spéciales, du fait par exemple qu'elle se trouve dans des terres autochtones.

Je crois pouvoir dire ici que la question environnementale semble offrir une occasion de collaboration entre la partie patronale et ouvrière. Partout dans le monde industriel avancé, des groupes de travailleurs et d'employeurs reconnaissent que l'environnement est un enjeu d'intérêt mutuel.

Entre autres choses, ils envisagent la possibilité d'inclure des «clauses vertes» dans les conventions collectives. Ici, au Canada, les aciéries et les Métallurgistes unis d'Amérique ont chargé un groupe de travail de l'environnement d'examiner des façons d'aborder ce dossier en mettant à contribution les deux parties.

Je note également que INCO et les Métallurgistes unis ont établi un comité conjoint touchant l'environnement. Peut-être que M. Gérard voudra nous en dire davantage au sujet de cette importante initiative.

À ce stade, je voudrais faire le point sur une autre question concernant l'environnement et que bon nombre d'entre vous ont eu l'occasion d'observer étroitement ces deux dernières années. Je fais ici allusion à la déductibilité des versements faits dans des fonds de mise en valeur des mines sous l'égide du gouvernement.

À l'issue de la conférence des ministres des Mines de l'an dernier, M. Epp a écrit à son collègue, M. Michael Wilson, ministre des Finances de l'époque, pour lui faire part de son appui quant à la position prise par le groupe de travail industrie-gouvernement des minéraux et des métaux au sujet du dossier de la déductibilité.

Nous sommes toujours en faveur de cette prise de position et je peux vous dire que nous avons soulevé la question auprès du nouveau ministre des Finances, M. Don Mazankowski, pour lui redire que nous appuyons un amendement à la *Loi de l'impôt sur le revenu* qui, à cet égard, se traduirait par un changement significatif pour l'industrie. Je prévois entretenir d'autres discussions avec lui sur ce sujet. Entretemps, j'accueillerais avec joie les commentaires de la communauté minière.

Permettez-moi de vous parler pendant un instant du rôle que les ressources naturelles jouent dans ce pays. Bien que l'on s'attende qu'elles contribuent grandement au bien-être économique et social des Canadiens, on a parfois tendance à perdre leur importance de vue.

Ainsi, par exemple, les mines sont une industrie qui emploie près de 400,000 personnes, d'un océan à l'autre et du 49^e parallèle jusqu'à l'Arctique. Elles sont l'épine dorsale d'économies régionales à travers le pays - pour plus d'une centaine d'entre elles en tout cas, qui touchent une population de près d'un million de gens.

Bien d'autres collectivités vivent des retombées de l'industrie. Les industries des services, de la fabrication, et des transports doivent leur survie aux ressources extraites de la terre. L'an dernier, les exportations minérales ont dépassé de 11 millions de dollars les importations, ce qui a permis aux Canadiens d'acheter à l'étranger une bonne partie de ce qui leur est nécessaire.

L'activité minière a aussi joué un rôle bien à elle dans la trame historique de notre pays. Elle est étroitement liée à la venue des premiers explorateurs et des premiers colons. Qu'il suffise de penser au rôle que la ruée vers l'or a joué dans les belles années du Yukon et à l'exode subséquent des aventuriers déçus qui iront s'établir de façon plus définitive en Colombie-Britannique et en Alberta, au début du siècle.

Puis, il y a de cela près de 150 ans, les premiers arpenteurs et cartographes de la Commission géologique du Canada avaient pour ambition d'établir le profil visuel des ressources enfouies dans le sous-sol et d'en dresser l'inventaire. C'était l'époque où les outils du prospecteur étaient le pic, la pelle et la batée.

Bien que ces méthodes d'hier soient encore parfois utilisées isolément, les prospecteurs et l'industrie utilisent aujourd'hui tout un éventail de méthodes modernes de haute technologie.

La télédétection, par avion ou par satellite, fournit une bonne partie des données géoscientifiques de base nécessaires. Le moment venu de mettre en valeur les gisements de minerais qu'elle découvre, l'industrie utilise des méthodes perfectionnées d'extraction et de transformation.

L'industrie minière est généralement perçue comme une activité salissante et techniquement rudimentaire, mais la vérité est tout autre. L'industrie minière moderne dispose de tout un arsenal dérivé de la haute technologie : conception et planification des mines par ordinateur; exploitation à distance, systèmes de répartition de véhicules informatisés et d'une grande efficacité; pyrotechnique de précision; procédés de métallurgie contrôlés par ordinateur, pour ne nommer que ces moyens.

L'industrie minière se doit d'être hautement technologique pour être concurrentielle. Elle n'a pas le choix. Pour connaître du succès sur le marché, elle doit se doter de la meilleure technologie disponible.

L'industrie minière est un secteur d'envergure pancanadienne. Toutes les provinces ainsi que les territoires disposent de ressources minérales. Et comme le faisait ressortir le dernier Discours du Trône, nous avons besoin d'activités industrielles comme celles du secteur minier pour resserrer les liens du Canada.

Nous devons contribuer au raffermissement et à l'essor des industries qui débordent les limites régionales pour contribuer à tonifier les économies régionales et l'économie nationale, car elles forment un des piliers dont nous avons tant besoin, en cette période critique de notre histoire.

L'industrie minière remplit déjà ce rôle de pilier. Il va sans dire qu'une industrie plus prospère, qui crée de l'emploi, contribue à la stabilité de nos régions et fournit une assiette d'imposition appréciable, remplira encore mieux cette fonction.

Le Cabinet fédéral recherche des moyens d'améliorer la compétitivité du Canada dans l'ensemble du monde de l'entreprise. Vous avez entendu parler, j'en suis sûr, de l'offensive-prospérité que nous comptons lancer bientôt.

Nous avons en effet l'intention de sonder les industries comme la vôtre au sujet des thèmes dont il sera justement question au cours de la présente conférence. Au fil des consultations que nous comptons entreprendre, nous vous demanderons de cerner les obstacles à la réussite, comment vous pouvez vous aider vous-mêmes à faire mieux et comment nous, Canadiens, pouvons devenir plus concurrentiels à l'échelle mondiale.

Je vous invite à profiter de cette occasion pour exprimer votre point de vue. Mais ne soyons pas dupes, non plus. Je sais fort bien que les gouvernements seront critiqués parce qu'ils adoptent des lois qui vous rendront la vie plus difficile.

Récemment, le ministre Epp rencontrait à Vancouver des dirigeants de l'industrie minière qui ont parlé, dans leur optique de gens de l'Ouest, des obstacles qui se dressent devant l'industrie. En Colombie-Britannique, faut-il s'en surprendre, l'utilisation des terres et l'accès à ces dernières, figurent en tête de liste des préoccupations.

Au cours des consultations que nous tiendrons prochainement avec un groupe semblable de dirigeants de l'industrie du centre du Canada, je m'attends qu'une liste de priorités comparable ressorte de nos discussions et, là encore, que les répercussions de la législation et de la réglementation en matière d'environnement figurent en tête de liste.

Il est évident, à en juger par la dernière vague d'affaires instruites devant les tribunaux canadiens, que la protection de l'environnement est à l'ordre du jour. L'affaire de la rivière Oldman en Alberta, et celle du barrage Rafferty-Alameda en Saskatchewan, ont obligé le gouvernement fédéral à intervenir plus énergiquement dans le processus d'examen en matière d'environnement.

Vous et moi savons fort bien que le public n'en démord pas, qu'il croit de moins en moins les gouvernements, des deux paliers, capables de faire respecter leurs normes environnementales, d'où la nécessité d'affirmer clairement notre volonté en ce sens.

Le Décret sur les lignes directrices régissant le Processus d'évaluation et d'examen en matière d'environnement reflète la volonté du gouvernement fédéral d'aller dans cette direction. Bien que ce décret paraisse aujourd'hui vous rendre la vie plus difficile, je suis convaincu que les difficultés actuelles de chevauchement de responsabilités et de double emploi dont vous m'avez parlé seront de courte durée.

Comme vous le savez, les ministres de l'Environnement sont d'accord pour éviter le chevauchement et le double emploi. Mais le processus traverse une période de transition qui ne va pas sans difficultés.

Avec le temps, on y mettra bon ordre, et les écueils actuels disparaîtront. J'ai entendu votre message à cet égard, et je puis vous assurer que le processus permet une réglementation saine, et une administration juste et efficace. Si des problèmes devaient persister, je compte sur vous pour me les signaler.

Au cours des deux prochains jours, pendant que vous discuterez des problèmes que l'industrie est appelée à régler, rappelez-vous que l'industrie minière canadienne est l'une des plus productives et des plus efficaces au monde. Vigoureuse et dynamique, elle est devenue un pivot de l'économie canadienne. Gardons-nous conséquemment de tout pessimisme quant à son avenir.

Le Canada est un pays dont le potentiel d'exploration minérale est vaste. Il dispose de riches réserves de minéraux confirmées, et la probabilité de réserves encore plus grandes est élevée. Le pays peut compter sur un bassin de main-d'œuvre qualifiée et sur une infrastructure à l'appui de la mise en valeur de ses ressources naturelles.

Mais il doit aussi composer avec des lacunes intrinsèques auxquelles nous ne pouvons rien. Notre petite population étant éparpillée sur un vaste territoire, nos coûts d'exploitation, de transport et de main-d'œuvre sont comparativement plus élevés que chez la plupart de nos concurrents.

Ces faits étant, les compagnies doivent prendre leurs décisions d'investissement avec grand soin pour demeurer concurrentielles sur le marché mondial. Je sais qu'il fut un temps où les sociétés minières fondaient principalement leurs décisions en matière d'exploration sur des facteurs comme le potentiel minéral et la stabilité politique d'un pays.

Aujourd'hui, il est évident que quelques nuages ont obscurci l'horizon. Je suis sûr que l'Association minière du Canada et l'Association canadienne des prospecteurs et des entrepreneurs vous diront que les politiques du gouvernement canadien ont affaibli leur position sur le marché mondial. Je suis prêt à écouter ces observations, que j'ai déjà entendues au cours de rencontres avec des dirigeants de l'industrie, et que j'entendrai sans doute encore aujourd'hui.

Cet après-midi, nous parlerons d'un autre problème auquel l'industrie minière fait face, celui de la gestion des ressources humaines, et en particulier d'éducation et de formation.

Ces dernières années, les Canadiens ont été renversés d'apprendre l'étendue du problème de l'analphabétisme au pays. En dépit des sommes considérables consacrées à l'éducation, la proportion est encore trop élevée de gens qui ne savent ni écrire ni compter assez bien pour administrer leurs affaires courantes.

Plus de la moitié des emplois qui seront créés pendant la présente décennie requerront plus de 12 années de scolarité et de formation. Pourtant, la scolarité d'environ 60 % de la population active ne dépasse pas le niveau secondaire.

D'une manière générale, les entreprises et l'industrie canadiennes ont négligé la question de la formation. Au total, le secteur privé consacre environ 1,4 milliard de dollars à la formation structurée, soit moins de la moitié de la dépense américaine par employé, et un cinquième de la dépense japonaise au même titre.

L'employeur allemand consacre en moyenne 630 \$ par travailleur par année, à la formation, alors que l'entreprise canadienne y consacre en moyenne 160 \$ environ.

Ces données nous font comprendre pourquoi le gouvernement attache autant d'importance à l'éducation et à la formation. Pour que nous puissions stimuler une économie axée sur la technologie, nous devons tous - les employeurs en particulier - contribuer bien davantage. Nous devons non seulement améliorer les compétences de notre main-d'œuvre mais aussi instaurer un climat culturel favorable à l'éducation et à la formation permanentes.

Je sais que l'Association minière s'intéresse depuis quelque temps déjà aux questions touchant les ressources humaines. Des représentants de l'AMC et de la MUA participent actuellement à une étude importante sur les ressources humaines dans l'industrie minière entreprise plus tôt cet été par le ministre de l'Emploi et de l'Immigration.

Les résultats de cet effort de coopération devraient être connus l'année prochaine. Le rapport qui en découlera devrait servir de point de départ à un programme de perfectionnement des ressources humaines dans l'industrie au cours des prochaines années.

En terminant, je vous invite à entamer vos discussions en ateliers en gardant à l'esprit les nombreux obstacles que doit surmonter l'industrie.

Je vous invite aussi à discuter des changements qu'il y aurait lieu d'apporter pour assurer la prospérité future de l'industrie, et auxquels le rapport sur la prospérité nationale pourrait faire écho. Ce serait pour vous un moyen de vous faire entendre. Votre influence, déjà perceptible, se fera d'autant plus sentir, si vous mettez vos idées en commun avec celles de vos collègues et de vos partenaires au sein du gouvernement.

48TH ANNUAL MINES MINISTERS' CONFERENCE

**Sustainable Prosperity for the Mining
Industry**

Leo W. Gerard

HALIFAX, Nova Scotia
September 22-24, 1991

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SUSTAINABLE PROSPERITY FOR THE MINING INDUSTRY

REMARKS BY LEO GERARD

UNITED STEELWORKERS OF AMERICA

HALIFAX MINES MINISTERS' CONFERENCE - SEPTEMBER 23, 1991

INTRODUCTION

- The mining industry has been and will continue to be critical to the Canadian and world economies. In Canada the industry produced metals, non metals and coal worth some \$18 billion in 1989. The industry has made a tremendous contribution to our national prosperity by providing many high skill/high paying jobs directly, generating further indirect employment and enhancing economic stability.
- The industry is particularly important to our union. Some 40,000 of our members are employed in the mining industry. Many of our trend setting achievements in collective bargaining - like indexed pensions and enhanced health and safety procedures - have come in this industry.
- Our union knows that our economic success as a nation depends on high value added production in traded sectors. Mining is, of course, one example of an engaged in such production. We also know that there serious challenges the industry must face and that our current economic success does ensure future prosperity.
- We believe the primary goal of any industry should be sustainable posterity. The prosperity we seek must be economically sustainable over the long term. It must be socially sustainable. And it must be environmentally sustainable. Our Union

is prepared to work hard towards that goal in any industry in which it represents members.

However, until business and government acknowledge that the industry is made up of more than owners and managers, our goal will be difficult to achieve. When we speak of the industry, we include the workers, their families and their communities. Unless business and government acknowledge the importance of giving workers a voice in shaping the industry and unless they accept the role of the union in meeting the challenges facing the industry, sustainable prosperity will remain a distant vision.

Our union is prepared to follow whatever course we determine is necessary to represent the needs of our members and work towards sustainable prosperity. We are capable of consultation. We are capable of co-operation. And, we are capable of confrontation. The path we must choose, unfortunately, is often determined to some extent by how the other players in the industry choose to deal with us.

Today, I'd like to discuss some of the challenges facing the industry, both market and non-market. I'd like to share with you our vision of sustainable prosperity. And, I'd like to talk about the role of the union in working towards that vision.

MARKET CHALLENGES

- Setting aside fluctuations in demand and price that arise from cyclical changes in the economy, there are two fundamental structural changes in the economy that present tremendous challenge. One is declining mineral intensity in the economy and the other is increased global competition.
- The market demand for most minerals, and indeed for most basic materials, is slowing in all developed countries. This is due to both product designs that use less material and to the introduction of advanced composite materials that are used as alternatives. Automobiles, for example, weigh some 600 lbs less today than they did seven years ago. Other advanced materials, such as plastics and ceramics, are being used instead of copper and steel.
- The amount of zinc, copper and steel required per unit of industrial output, has declined dramatically over the past several years.
- Compounding the difficulties presented by the long term decline in metal intensity is the increasing global competition in resource products. Many parts of the world have been less explored or prospected than Canada and have in the past lacked the physical infrastructure and financial resources to develop the ore bodies that

have been identified. However, these underdeveloped resources are often highly competitive. Copper from Chile, zinc from Peru and iron ore from Brazil are all extracted at very low costs.

- The development of physical infrastructures in lesser developed countries - such as the building of roads, bridges and railways - has made these ore bodies more accessible. The development of international capital markets - facilitated by agencies like the World Bank - have made these projects easier to finance. The steady reduction in ocean transport costs has eliminated the cost penalty previously imposed by distance from consumers. In short, global competition is becoming more intense.

- Canadian mining companies and our members have responded to these pressures by increasing productivity. This has usually been accomplished by investing in advanced equipment and reducing employment levels. The labour productivity of our members at Inco for example, has been increased some 70% by techniques such as vertical retreat mining.

- However, as I said earlier, current economic success does not guarantee sustainable prosperity. The economic challenges facing the industry now are severe enough that we need new strategies.

- Focusing on keeping unit labour costs down may be viewed by some of you as one route to sustained prosperity for some in the industry. This approach, often used during recessions like the one we currently suffering through, is short term oriented and not economically sustainable. Not only does this approach lower the standard of living for Canadians, it ultimately deprives government of the revenue it needs to help provide the skills base and physical infrastructures necessary to run productive enterprises. At the firm level, if recession induced cost reductions involve laying off skilled workers or postponing needed investment in workforce development and new technologies, then short term cost competitiveness is counter productive in the long term.

- Some of you may think that high labour costs and wages have reduced cost competitiveness and impaired structural adjustment. However, it should be noted that for the period between 1979 and 1989, real hourly wages in Canada have increased by only 0.2%. The only G-7 nation with a worse performance, to us that means a smaller increase, was the United States where real wages have decreased. In terms of productivity growth, Canada was the worst performer of the seven. In Britain, on the other hand, real wages went up 2.8% and productivity 4.7%. In Germany, real wages went up 1.4% and productivity 1.8%. In Japan, Italy and France as well, both wages and productivity increased by greater percentages than they did in Canada.

We believe that the low-wage approach to achieving competitiveness does not help us get the productivity gains that some say it does, and we believe it is not the way to sustainable prosperity.

- Canadian mining is going to have to find ways to compete on a basis other than labour costs and raw material costs. It is going to have to compete on some higher value added basis such as technological innovation, greater productivity and perhaps specialized refining processes and product development.
- Competing on this basis requires tremendous investment in workforce development. It also requires new ways of thinking about how work gets done and how organizations are designed. The more technologically sophisticated workers and managers are at all levels in the industry, and more creative we can be in designing workplaces that are less hierarchial and less authoritarian, the more able we will be to compete on skilled workforce/value added basis. The industry will then become less dependant on raw material costs and unit labour costs as the only way to competitiveness.

NON MARKET CHALLENGES

- There are also several non-market challenges that will generate substantial change in the dynamics of the industry.

- The single most important of these remains the environment. The continuing scientific and political debate over potential global climatic change has intensified and broadened. Acid rain, other forms of pollution and depleting non-renewable resources are issues that continue to require attention. Working conditions in some mines are hazardous to both the health of our members and the quality of the environment they find themselves in.
- Social issues constitute some of the most difficult issues of all. In all of our mining communities we have deal with economic dependence on single industry and with infringement on the rights of Native Canadians.

SUSTAINABLE PROSPERITY

- Meeting these challenges and achieving sustainable prosperity is going to require tremendous restructuring at all levels of the industry and it is going to require new initiatives and new relationships between groups in the industry.
- We have to ensure that the costs of restructuring are borne fairly and the benefits of sustainable prosperity are shared fairly.
- Workers cannot be expected to pay the price of moving to new technologies, of developing a highly trained workforce, or of protecting the environment and

meeting social challenges.

- We need effective labour adjustment programs so that workers lives are not destroyed by industry drives to increase productivity and decrease employment levels. Early retirement, family and economic counselling, re-training and re-location assistance are among the needs for which we must develop effective responses.
- Government support for the development of new technologies and environmental cleanup must include an allocation for worker's adjustment costs.
- We need "whistle blower" protection which will protect workers who report suspected environmental infractions from employer reprisals.
- We must become committed to the development of a training culture in the industry that is jointly designed and administered by labour, business and government. The training culture must foster training in skills that are generic and portable. Training initiatives must be designed to meet the needs of workers, not just business.
- We need to be more creative in encouraging regional economic development in as many mining communities as we can. Working with suppliers and trying to

encourage the development of users in regional economies will both increase the competitiveness of the mining operation and develop infrastructures that will attract other industries and help diversify the local economy. The development of a highly trained, flexible workforce is probably one of best ways to attract industry to any community.

- We also need to consider Native Canadians. Historically, mining companies have explored and developed mines on or near native reserves without much consideration of the effect operations may have on native traditions and communities. And, there certainly was not much consideration given to involving natives in projects through employment and training opportunities.

THE ROLE OF THE UNION

- There is much that labour can do to help the vision of sustainable prosperity be realized. Our union, The United Steelworkers of America, has broken a lot of the ground.
- In CSTEAC our union, together with steel company executives, have created a vehicle that truly represents the industry - an industry, like mining, that is made of workers as well as managers.

- We have worked together in two specific areas: labour adjustment and trade. In the area of labour adjustment, we have designed and implemented our own programs to ease the burden on individual workers who are forced out of the industry by plant closure and layoff. Federal funding through the Innovations program has allowed us to offer a unique steel industry program of job-search assistance, counselling, training and other measures to steelworkers who are faced with job loss.
- In the area of trade, we have focused on combatting the image of Canada held by some in the United States as an unfair trader of steel products.
- Our union, along with business executives and other unions in the industry, founded the Sectoral Skills Council. That organization was created to develop the kind of training culture I mention earlier, in the electrical and electronics industries. We believe that through the SSC, the training needs of both workers and businesses in that industry will be addressed.
- I'm sure you have all read about Algoma Steel and how we plan to restructure it through worker ownership. We believe we can create an economically viable steelmaker that will continue to provide our members and the communities of Sault Ste Marie and Wawa with high paying secure jobs.

- We are also creating the Sault Ste Marie Training and Economic Development Institute. The one of the objectives of this institute is to provide training to Algoma employees, both hourly and managerial, in how to work in a restructured workplace that is less hierarchial, less authoritarian and more productive. It will also provide technical training, some job specific training, basic skills training and will even provide courses in steel industry economics. The other key objective is to encourage regional economic development. This will be done by opening up the training programs to community with a view to creating a highly skilled local workforce that will act as magnet to attract other business. The Institute will also try to identify downstream users of steel products and try to attract them to Sault Ste Marie.
- We are also breaking new ground in environmental issues and in protecting the rights of Native Canadians.
- In Sudbury, with Inco, we have created a senior level joint environmental awareness committee. (Leo - ad lib)
- At Dona Lake, we won an employment equity plan for Native Canadians. (Leo - ad lib)
- The Steelworkers Union has demonstrated an ability to do extraordinary things in

working towards sustainable prosperity:

- We believe our vision of sustainable prosperity is one that should be shared by business and by government. Unfortunately, many businesses in the mining industry do not seem willing to accept the role we play in trying to realize that vision.
- For every senior level joint environmental awareness committee, there is a two year battle to get a first collective agreement.
- For every employer with whom we have a discussion on broadening the skill base of trades, implementing new technologies and managing the resulting reduced employment requirements through early retirement programs, there is an employer who ignores our legitimate role as duly elected bargaining agent and sends videotape messages of uncompromising positions directly into the homes of our members.
- For every joint resolution to a production problem, there is vehement opposition in an organizing drive.
- The theme of this year's Conference is "The importance of the Mineral Industry to Canada". What I have tried to do today is demonstrate the importance of the

Steelworkers Union to the vision of sustainable prosperity of the mining industry. Your ability to accept and appreciate that importance will go a long way in determining whether your relationship with us will be characterized by consultation, co-operation or confrontation.

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LA PROSPÉRITÉ DURABLE POUR L'INDUSTRIE MINIÈRE

LEO W. GERARD

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LA PROSPÉRITÉ DURABLE POUR L'INDUSTRIE MINIÈRE

ALLOCUTION DE LEO GERARD

MÉTALLURGISTES UNIS D'AMÉRIQUE

CONFÉRENCE DES MINISTRES DES MINES À HALIFAX

LE 23 SEPTEMBRE 1991

INTRODUCTION

- L'industrie minière demeure un secteur clé des économies mondiale et canadienne. Au Canada, l'industrie a extrait en 1989 des minerais, du charbon et d'autres produits pour une valeur d'environ 18 milliards de dollars. Elle a fortement contribué à notre prospérité nationale en créant directement beaucoup d'emplois très bien rémunérés qui demandent une grande compétence, des emplois indirects et en suscitant une stabilité économique.
- L'industrie minière est particulièrement chère aux yeux de notre syndicat. Elle emploie quelque 40 000 de nos membres. Bon nombre de nos réalisations qui ont créé des précédents en matière de conventions collectives, telles que les rentes indexées et l'amélioration des démarches de santé et de sécurité, ont eu lieu dans ce secteur.
- Notre syndicat sait que notre prospérité économique en tant que pays dépend d'une production élevée à valeur ajoutée dans les secteurs d'échanges commerciaux. L'exploitation minière en est certes un exemple. Nous connaissons également les sérieuses difficultés que doit surmonter l'industrie et nous savons que notre succès économique actuel n'est pas une garantie de prospérité future.
- Nous croyons que la prospérité durable doit être l'objectif primordial de toute industrie. Cette prospérité doit s'échelonner sur de nombreuses années. Elle doit respecter le contexte social et environnemental. Notre syndicat est prêt à oeuvrer pour atteindre cet objectif au sein de n'importe quelle industrie qui embauche certains de nos membres.

- Cependant, nous éprouverons de la difficulté à atteindre notre objectif tant que les entreprises et les pouvoirs publics ne reconnaîtront pas le fait que l'industrie n'est pas uniquement composée de propriétaires et de gestionnaires. Lorsque nous parlons de l'industrie, nous y incluons les travailleurs, leurs familles et leurs collectivités. Si les entreprises et les pouvoirs publics ne reconnaissent pas la nécessité de laisser les travailleurs participer à l'avenir de l'industrie et s'ils n'acceptent pas le rôle du syndicat dans ce domaine, la prospérité durable demeurera un rêve.
- Notre syndicat est prêt à adopter la ligne de conduite qu'il juge nécessaire pour défendre les besoins de nos membres et oeuvrer en faveur d'une prospérité durable. Nous sommes capables de collaborer. Et nous sommes capables de lutter. La ligne de conduite que nous devons malheureusement adopter est souvent déterminée dans une certaine mesure par la façon dont les autres intervenants de l'industrie nous traitent.
- J'aimerais aujourd'hui vous faire part de certaines des difficultés que doit surmonter l'industrie, à la fois commerciales et non commerciales. J'aimerais vous présenter notre vision d'une prospérité durable. Et j'aimerais vous parler du rôle du syndicat pour atteindre cet objectif.

PROBLÈMES COMMERCIAUX

- En ne tenant pas compte des fluctuations de la demande et des cours qui découlent de changements cycliques de l'économie, on compte deux changements structuraux fondamentaux de l'économie qui présentent des difficultés considérables. Il s'agit de la baisse de l'utilisation des minerais et l'augmentation de la compétition internationale.

- La demande des marchés pour la plupart des minerais, et donc aussi pour les matériaux de base, est en baisse dans tous les pays industrialisés en raison de la conception des produits, qui requièrent moins de matériaux, et de l'apparition de nouveaux matériaux avancés qui remplacent les matériaux d'autrefois. À titre d'exemple, les automobiles pèsent aujourd'hui 600 livres de moins qu'autrefois. D'autres matériaux avancés, comme les plastiques et les céramiques, remplacent le cuivre et l'acier.
- La quantité de zinc, de cuivre et d'acier nécessaire par unité de production industrielle a chuté considérablement au cours des dernières années.
- La croissance de la compétition internationale pour la vente de ressources naturelles aggrave les difficultés susmentionnées. Bon nombre de régions du monde ont été moins explorées et prospectées que le Canada et n'avaient pas autrefois l'infrastructure et les ressources financières nécessaires pour exploiter les corps minéralisés découverts. Cependant, ces ressources sous-exploitées sont souvent à l'origine d'une compétition féroce. Le cuivre du Chili, le zinc du Pérou et le fer du Brésil sont tous exploités à un coût peu élevé.
- La création d'infrastructures dans les pays moins développés, comme la construction de routes, de ponts et de voies ferrées, a rendu ces corps minéralisés plus accessibles. La création de marchés financiers internationaux, encouragée par des organismes comme la Banque mondiale, a favorisé le financement de ces projets. La réduction constante du coût du transport maritime a supprimé les frais dus à la distance. En somme, la compétition internationale devient plus serrée.

- Les sociétés minières du Canada et nos membres ont réagi à ces pressions en augmentant la productivité. Pour y arriver, on a investi dans du matériel perfectionné et on a réduit le nombre d'emplois. À titre d'exemple, la productivité de nos membres à l'Inco a augmenté de quelque 70 p. 100 à l'aide de techniques comme le rabattage vertical.
- Comme je l'ai déjà mentionné, notre succès économique actuel n'est pas la garantie d'une prospérité durable. Les problèmes économiques de l'industrie sont suffisamment sérieux pour élaborer de nouvelles stratégies.
- Certains d'entre vous croient que la prospérité durable de certaines sociétés passe par une limitation du coût de la main-d'oeuvre. Cette ligne de conduite, fréquemment utilisée en période de récession, n'est qu'une démarche à court terme qui n'est pas économique. Non seulement abaisse-t-elle le niveau de vie des Canadiens, mais elle prive ultérieurement les gouvernements des recettes dont ils ont besoin pour former la main-d'oeuvre et créer l'infrastructure nécessaires pour la rentabilité des entreprises. Au sein des entreprises, si la réduction des coûts due à la récession passe par le licenciement de travailleurs compétents ou par la remise à plus tard d'un financement consacré au perfectionnement de la main-d'oeuvre et aux nouvelles techniques, la compétitivité à court terme entrave alors la compétitivité à long terme.
- Certains d'entre vous croient peut être que le coût élevé de la main-d'oeuvre a réduit la compétitivité et nuit à l'adaptation de l'infrastructure. Il convient toutefois de remarquer qu'au cours de la décennie 1979-1989, les salaires horaires réels au Canada n'ont augmenté que de 0,2 %. Les États-Unis sont le seul pays membre du groupe des sept qui s'en est moins bien tiré, c.-à-d. où les salaires réels ont

baissé. En matière de croissance de la productivité, le Canada a le score le moins enviable des sept pays. En Grande-Bretagne, d'autre part, les salaires réels ont augmenté de 2,8 % et la productivité de 4,7 %. En Allemagne, les salaires réels ont augmenté de 1,4 % et la productivité de 1,8 %. Au Japon, en Italie et en France, les salaires et la productivité ont augmenté encore plus qu'au Canada.

- Nous croyons que la méthode des salaires peu élevés pour devenir compétitif n'est pas aussi efficace que certains le prétendent, et nous estimons que ce n'est pas la ligne de conduite à adopter pour obtenir une prospérité durable.
- Pour être plus compétitive, l'industrie minière canadienne devra trouver des moyens qui ne sont pas fondés sur le coût des salaires et des matériaux. Elle devra compter sur la valeur ajoutée comme l'innovation technologique, une productivité accrue et peut-être des mécanismes de rationalisation spécialisés et la mise au point de produits.
- Pour ce faire, il faudra investir considérablement dans le perfectionnement de la main-d'oeuvre. Il faudra également changer la façon dont nous considérons la réalisation du travail et la conception des organismes. Tous les niveaux de l'industrie comportent des travailleurs et des gestionnaires plus compétents en matière de techniques, et plus nous créerons des milieux de travail moins hiérarchiques et moins autoritaires, plus nous serons en mesure de lutter à partir d'une main-d'oeuvre compétente et d'une valeur ajoutée. L'industrie sera alors moins dépendante du coût des matériaux bruts et de la main-d'oeuvre comme sources de compétitivité.

PROBLÈMES NON COMMERCIAUX

- La dynamique de l'industrie sera perturbée par des changements considérables qui découlent de plusieurs problèmes non commerciaux.
- L'environnement demeure le plus important de ces problèmes. Le débat scientifique et politique permanent sur l'éventuel réchauffement planétaire s'est intensifié et s'est étendu. Les précipitations acides, d'autres formes de pollution et l'appauvrissement des ressources non renouvelables sont des problèmes qui exigent notre attention. Les conditions de travail dans certaines mines sont dangereuses à la fois pour la santé de nos membres et pour la qualité du milieu dans lequel ils vivent.
- Les problèmes sociaux sont parmi les plus difficiles. Dans toutes nos collectivités minières, nous avons été témoins d'une dépendance économique envers une seule activité industrielle et d'une transgression des droits des autochtones.

PROSPÉRITÉ DURABLE

- Pour relever ces défis et atteindre la prospérité durable, il faudra restructurer considérablement tous les niveaux de l'industrie, prendre des mesures innovatrices et tisser de nouvelles relations entre les groupes au sein de l'industrie.
- Nous devons veiller à ce que le coût de la restructuration et les avantages de la prospérité durable soient répartis équitablement.

- On ne peut demander aux travailleurs de faire les frais des nouvelles techniques, de la formation d'une main-d'oeuvre hautement compétente ou de la protection de l'environnement et de relever les défis sociaux.
- Nous avons besoin de programmes efficaces d'adaptation de la main-d'oeuvre de façon que la vie des travailleurs ne soit pas détruite par la volonté de l'industrie à accroître la productivité et à réduire le nombre d'employés. La retraite anticipée, l'orientation familiale et économique, le recyclage et l'aide à la réinstallation sont parmi les besoins que nous devons combler.
- L'aide gouvernementale à la mise au point de nouvelles techniques et à l'assainissement de l'environnement doit prévoir un coût d'adaptation des travailleurs.
- Nous avons besoin d'une protection "visible" qui protégera les travailleurs qui dénonceront les pratiques polluantes des représailles de leur employeur.
- Nous devons nous engager de susciter une culture de la formation conçue et administrée par les syndicats, les entreprises et les gouvernements. Cette culture doit favoriser l'acquisition de compétences générales, peu importe le lieu de travail. Les mesures de formation doivent être conçues pour répondre aux besoins des travailleurs et non seulement à ceux des employeurs.
- Nous devons être plus créatifs en favorisant le développement économique régional dans le plus grand nombre de collectivités minières possibles. L'aide des fournisseurs et le développement des utilisateurs dans l'économie régionale augmenteront la compétitivité du secteur minier et créeront une infrastructure qui attirera d'autres industries et

contribuera à la diversification de l'économie locale. La création d'une main-d'oeuvre très compétente et qui s'adapte facilement est probablement l'une des meilleures façons d'attirer des entreprises.

- Il ne faut pas oublier les autochtones. Les sociétés minières ont toujours exploré des terrains et exploité des mines à l'intérieur ou à proximité de réserves sans trop se préoccuper de l'incidence de ces activités sur les traditions et les collectivités autochtones. La participation des autochtones aux projets, grâce à la création d'emplois et aux possibilités de formation, n'était certes pas une source de préoccupation.

RÔLE DU SYNDICAT

- Les syndicats peuvent contribuer considérablement à atteindre cette prospérité durable. Les Métallurgistes unis d'Amérique ont été souvent des pionniers.
- Par le CCCES, notre syndicat, de concert avec la direction de sociétés sidérurgiques, a créé un instrument qui représente vraiment l'industrie, une industrie, comme l'industrie minière, qui est composée de travailleurs et de gestionnaires.
- Nous avons travaillé de concert dans deux domaines précis : l'adaptation de la main-d'oeuvre et le commerce. Dans le premier domaine, nous avons conçu et mis en oeuvre nos propres programmes pour alléger le fardeau des travailleurs qui sont remerciés de leurs services. Les fonds du Programme fédéral d'aide à l'innovation nous ont permis de créer dans le secteur sidérurgique un programme unique d'aide à l'emploi, d'orientation et de formation ainsi que d'autres

mesures pour les métallurgistes qui risquent de perdre leur emploi.

- Dans le domaine du commerce, nous nous sommes surtout préoccupé de la lutte contre l'image que possède certains américains selon laquelle le Canada est un partenaire commercial injuste en matière de produits en acier.
- Notre syndicat, de concert avec des cadres et d'autres syndicats de l'industrie, a créé le Sectoral Skills Council (SSC) dans le but de susciter le type de culture de formation dont j'ai fait allusion ci-dessus dans les industries de l'électronique et des produits électriques. Nous estimons que les besoins de formation des travailleurs et des entreprises de ce secteur pourront être réglés grâce au SCC.
- Je suis persuadé que vous êtes tous au courant au sujet des Aciers Algoma et de la façon dont nous prévoyons restructurer la société au profit des travailleurs qui en sont les propriétaires. Nous croyons que nous pouvons créer une entreprise rentable qui embauchera nos membres de Sault Ste. Marie et de Wawa à des salaires très intéressants.
- Nous créons également le Sault Ste Marie Training and Economic Development Institute. L'un des objectifs de cet institut consiste à procurer une formation aux employés de l'Algoma, manoeuvres et gestionnaires, sur la façon de travailler au sein d'un milieu moins hiérarchisé, moins autoritaire et plus productif. Il y aura aussi une formation technique, spéciale et générale, ainsi que des cours d'économie qui se rattachent à la sidérurgie. L'autre objectif clé est le suivant : favoriser le développement économique régional. On y arrivera en permettant à la collectivité de tirer profit des programmes de formation dans le but de créer une main-d'oeuvre locale très compétente qui attirera

d'autres entreprises. L'institut tentera également de cerner les utilisateurs en aval de produits en acier et de les attirer à Sault Ste Marie.

- Nous faisons aussi oeuvre de pionniers en matière d'environnement et de protection des droits des autochtones.
- À Sudbury, nous avons créé à l'Inco un comité mixte de l'environnement. (Leo - improv.)
- À Dona Lake, nous avons remporté un régime d'équité d'emploi pour les autochtones. (Leo - improv.)
- Les Métallurgistes unis ont démontré qu'ils sont capables d'accomplir beaucoup pour atteindre la prospérité durable.
- Nous estimons que notre vision d'une prospérité durable doit être partagée par les entreprises et les gouvernements. Malheureusement, bon nombre de sociétés minières ne semblent pas prêtes à assumer le rôle que nous jouons pour concrétiser ce rêve.
- Pour chaque comité mixte de sensibilisation à l'environnement créé, on doit prévoir une lutte de deux ans avant la première convention collective.
- Pour chaque employeur avec lequel nous discutons de l'élargissement de la compétence des travailleurs, de la mise en service des nouvelles techniques et de la chute concomitante du nombre d'emplois, réglée par des programmes de retraite anticipée, il existe un employeur qui ignore notre rôle légitime d'agent de négociation dûment élu et qui envoie directement à nos membres des messages sur bande vidéo dans lesquels il présente une position intransigeante.

- Pour chaque solution à un problème de production, il y a une opposition féroce de nature organisationnelle.
- La présente conférence annuelle a pour thème l'importance de l'industrie minière au Canada. J'ai tenté aujourd'hui de démontrer l'importance des Métallurgistes unis pour la prospérité durable de l'industrie minière. Selon votre attitude face à cette importance, vous tisserez une relation avec nous qui sera caractérisée par la consultation et la collaboration ou par l'affrontement.

48TH ANNUAL MINES MINISTERS' CONFERENCE

Workshop Topics and Reports

HALIFAX, Nova Scotia
September 22-24, 1991

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WORKSHOP TOPICS

1. MINING AND THE ENVIRONMENT

1.1 Regulatory Environment

a) National issues

- . lack of harmonization among jurisdictions (e.g. Rafferty Dam); delays provoking confusion
- . few judicial precedents in the field: challenges and appeals
- . limited human knowledge of environmental impacts in various terrains - Arctic, offshore, earthquake-prone areas, Canadian shield, etc., requiring sound geoscientific underpinning
- . geographical imperatives: lakes straddle boundaries, rivers flow across different jurisdictions, air moves according to the prevailing wind, etc.
- . cost, in time and human resources, for the various environmental assessment processes
- . level of fines and penalties

b) Other considerations

- . no government in Canada is running ahead of public opinion in its environmental regulation
- . recycling vs. new processing

c) Questions

- . Given the variety of standards across Canada, are provincial governments really committed to recycling?
- . How can we ensure input to the regulatory process at an appropriate juncture?
- . Are we sharing experience among ourselves in ways that will allow for a better development of standards?

1.2 Liability Issues

a) National issues

- . corporate vs. individual liability
- . retroactivity of legislative and regulatory provisions
- . deductibility of contributions to mandated funds
- . standards required for abandoned, dormant or new mines
- . assumption of retroactive responsibility as the result of mergers and acquisitions
- . level of fines or penalties

b) Other considerations

- . lack of world-wide precedents in standard-setting
- . absence of suitable insurance policies covering reclamation
- . search for suitable financial vehicles for funding reclamation, decommissioning and post-closure obligations
- . the Mine Environment Neutral Drainage (MEND) Program

c) Questions

- . Will the public ever accept "cost" as an argument for lowering environmental protection standards? Should they?
- . Who is responsible for the development of appropriate technology for reclamation of sites?
- . Are fines at their current levels, not simply "licenses to pollute"?

1.3 Native Rights to Land

a) National issues

- . multiplicity of jurisdictions required to deal with Status and Non-status Indians (Treaty or other, on or off reserve), Metis, Innu, Inuit and Inuvialuit
- . multiplicity of cultural norms, negotiating stances, expectations
- . traditional attitudes of native peoples toward nature and the land
- . "Aboriginal Rights" a relatively new concept in international jurisprudence: Canada as a trail blazer
- . length of time to settle land claims
- . level of mining activity in Canada is disputed lands

b) Other considerations

- . lack of trust between native peoples and the federal government because of constitutional questions outstanding
- . increased public sympathy for native questions, as a result of Oka, Temagami and similar incidents in the recent past
- . increased media attention given to native issues

c) Questions

- . Would not involving native peoples actively in the mining industry be a better policy for Canada than simply paying compensation for access to lands?
- . Is the mining industry better informed/equipped than the forest products industry to handle confrontations with Native peoples on disputed lands? Are the circumstances substantially different?
- . What is an appropriate forum for involving native peoples in the on-going debate on mining concerns in Canada?

1.4 Multiple Use of Land

a) National issues

- . differing rules for access among jurisdictions (e.g. National vs. Provincial parks)
- . Canada's geology: no region can be eliminated as a potential mineral source
- . public concern for wildlife and the environment; belief that the mining industry is not doing a good job on the environment
- . definitions of "wilderness", "habitat", "fragile ecology", etc.
- . lack of long-term data on rates of environmental degradation/recovery
- . which land can be used for multiple purposes concurrently, and which sequentially
- . remote areas: costs associated with access; residents, if any, tend to be native peoples

b) Other considerations

- . Presentation to the Conference of the National Land Use System (NATLUS), by the Mineral Land Use Committee (MILUC)
- . experience in other jurisdictions

c) Questions

- . Who should decide the priorities for use?
- . Is it in Canada's interest to have differing standards in various provinces?
- . Does the industry accept the principle of stewardship of Canada's resources - mineral and environmental - for future generations?

1.5 Development of Offshore Resources

a) National issues

- . geoscientific knowledge base required
- . Law of the Sea and other international laws/conventions governing exploration in fragile or hostile terrain
- . boundary disputes: Juan de Fuca, Beaufort Sea. Does the Northwest Passage belong to Canada?
- . ownership of the resources: common Canadian heritage, or the property of coastal provinces
- . safety of workers in offshore sites
- . prevention of pollution by noxious products
- . impact on the fishing industry
- . Canadian sourcing of specialized equipment and services
- . Canadian expertise as an exportable commodity

b) Other considerations

- . exploration incentive funding
- . bringing the commodities ashore

c) Questions

- . Is mineral exploration in offshore regions an acceptable means of asserting Canadian sovereignty?
- . Who should decide the priorities for access to offshore regions?
- . Should coastal provinces be given priority in processing of any minerals found offshore?
- . Is there an adequate infrastructure in place to support offshore mineral exploration (ports and on-shore facilities; processing facilities; Search and Rescue; environmental inspection; on-going geoscientific research in key areas)

1.6 Future Trends in Land Use Policy

a) National issues

- . standards are likely to be progressively restrictive, to respond to public attitudes about the environment
- . "sustainable development" still has not been adequately defined in public policy terms
- . increasingly, governments may have to act as arbitrators between polarized sectors in society
- . the "Bambi" syndrome: public concern for wildlife outweighs concern for the land itself
- . increased demand for scientific input to decision-making, e.g. Geographic Information System
- . the need for "value added" to be part of any argument in favour of increased land use, if it is to carry weight

b) Other considerations

- . increasingly, the media will be acting as participants with "partis pris", rather than observers and commentators on public policy issues

c) Questions

- . Where does common ground lie, in matters of the environment, in the Canadian context?
- . Who are the mineral industry's allies, and who its competitors, for land use?
- . Is the British Columbia model of "ecological reserves" something that should be adopted throughout Canada?
- . Is the mining industry sufficiently skilled at media relations to get its position across in advance of confrontational situations, so that a residual benefit of doubt for its position will exist?

WORKSHOP TOPICS

2. HUMAN RESOURCES AND THE MINERAL INDUSTRY

2.1 Attracting, Training and Retaining Skilled Workers

a) National issues

- . Canadian bias against technical education and the trades
- . immigration quotas not linked to workforce demand
- . attitudinal and social barriers to greater participation of women in non-traditional occupations
- . mining industry not perceived as "good" employer
- . difficulty of attracting skilled workers to remote areas
- . impression of "sunset" industry (e.g. Schefferville)

b) Other considerations

- . need for a tripartite approach: governments, employers and unions
- . cyclical patterns in university enrolment
- . cuts in transfers to provinces for post-secondary education

c) Questions

- . Is the industry engaged in sufficient long-range scanning activity, better to predict the movement of commodity prices and allow for planning of education and training trends and employment prospects?
- . Is there sufficient cooperation in the approach to training and upgrading of current employees, to ensure a steady pool of up-to-date knowledge?
- . Is the image of a white, male industry working against the efforts to attract and keep other employees?

2.2 Industrial Disease

a) National issues

- . bans and moratoria on noxious/dangerous minerals (asbestos, uranium)
- . compensation: who pays and how much?
- . who is at risk? workers only? persons in the mining communities? or those engaged in down-stream activities, i.e. transportation, processing, or those in neighbouring communities, etc.
- . safe handling practises: Transportation of Dangerous Goods legislation, etc.
- . overlaps and gaps in federal and provincial legislation and regulation

b) Other considerations

- . experience in the mining industry compared to morbidity statistics for the non-mining population: e.g. heart and lung diseases; automobile accidents vs. industrial accidents
- . research into new uses of dangerous by-products: e.g. CANMET research into the use of fly ash

c) Questions

- . Should the mining industry be funding research into industrial diseases?
- . Does the mining industry provide adequate training in safe handling practises of dangerous products?
- . Can the industry hope to improve its public image while arguing that the Transportation of Dangerous Goods Act, and Hazardous Products legislation are a "worrisome initiative"?

2.3 Native Employment

a) National issues

- . education patterns: cultural differences, different learning styles; differing standards between provincial, territorial and Indian Affairs education systems
- . demographics: relative youth of the native population compared to the whole
- . skills and technical training not usually available near reserves
- . conflict between traditional native activities (seasonal, nomadic), and expected workforce participation
- . conflict between differing concepts of individual and collective identity, in relation to a hierarchical workforce environment

b) Other considerations

- . bands/native communities taking equity positions in mining companies.
- . overlap in social benefits often provided by employers, such as medical and dental plans, for different categories of native peoples (Status, non-Status, on and off reserve, etc.)

c) Questions

- . How can the industry ensure that native concerns are brought forward for consideration throughout the on-going policy debates on the future of the industry?
- . Does the mining industry provide scholarships and bursaries for native university students in related professional disciplines, or does it perceive native peoples only as blue-collar workers?
- . Given the different concepts of individual and collective identity, is a conflict of interest created for native employees of mining companies in which their band/community has taken an equity position?

2.4 Cyclic Employment in the Mineral Industry

a) National issues

- . demand created by commodity prices not under control of the industry or of Canada
- . lack of alternative employment opportunities in mining regions
- . exporting jobs to lower-wage areas: impact of the Free Trade Agreement
- . expanding into areas with lower environmental protection standards: exporting our pollution

b) Other considerations

- . job creation in the natural resources sectors as opposed to others, over the past three or four years

c) Questions

- . Is the situation ever likely to change? Should the mining industry be spending so much time discussing a situation over which it has virtually no control?
- . Are there ways to diversify regional/commodity employment structures to reduce cyclical effects?
- . Is the combined effect of the Free Trade Agreement and the recession to push Canada back into being "hewers of wood and drawers of water"?

2.5 University Programs in Geology and Mining Engineering

a) National issues

- . declining enrolments; reduction or cancellation of programs
- . need for more positive attitudes toward women on the part of engineers and earth scientists
- . cuts in transfers to provinces for post-secondary education
- . other fiscal barriers to university study: e.g. GST on textbooks and student loans
- . universities squabbling over the size of the "pot" rather than looking for rationalization of courses
- . image of mining as a "sunset" industry, poor employer

b) Other considerations

- . historically low interest in geoscience in Quebec

c) Questions

- . What steps can the mining industry take to attract and retain women, without waiting for special reports such as the current commission of enquiry into women and the engineering profession?
- . What activities does the mining industry conduct at the high-school level to encourage students to adopt careers in this field? Has the industry used arguments about Canada's international reputation for expertise in mining technology, to encourage students to follow mining or engineering careers?
- . What is the attitude of the mining industry toward the concept of "centres of excellence" as opposed to expecting every university to provide programs in all disciplines?

WORKSHOP TOPICS

3. FINANCIAL CONCERNS OF THE MINERAL INDUSTRY

3.1 Reclamation Funding

a) National issues

- . mandatory funds: need for them, and tax deductibility of contributions
- . nature of financial assurance vehicle
- . lack of suitable insurance
- . corporate vs. individual liability: will some of find ourselves in jail one day?
- . standards: levels, and retroactivity of application
- . different mines, different requirements: physical safety; effluents; deterioration of site over time
- . need for harmonization of standards among jurisdictions
- . need for solid geoscientific knowledge in setting standards

b) Other considerations

- . retroactive corporate responsibility in the event of mergers and acquisitions
- . comparison of standards with competitors in other jurisdictions
- . lack of long-term scientific knowledge on site deterioration

c) Questions

- . What is the nature of responsibility for clean-up in other industries: petroleum? forest products?
- . Does the Canadian public care if standards are lower elsewhere? Should it?

3.2 Mineral Exploration Incentives

a) National issues

- . sources of funding: government-provided, or private
- . the nature of the government incentive: grant or contribution; tax exemption, deduction or credit; enhanced depreciation allowances; other
- . how to ensure the money is actually used for exploration
- . stability of fiscal regimes needed for long-term planning
- . harmonization of tax treatment among jurisdictions within Canada

b) Other considerations

- . recovery through recycling vs. new extraction
- . comparisons with competitors in other countries
- . comparisons to incentive funding available to other resource-based industries in Canada

c) Questions

- . How can we create an attractive investment climate for exploration in the absence of direct incentives?
- . Will incentive funding ever outstrip commodity prices as a key factor in the level of exploration activity?
- . Are exploration incentives in keeping with the provisions of the Free Trade Agreement?

3.3 Mining Taxes

a) National issues

- comparisons with major competitors
- comparisons with other resource-based industries in Canada
- harmonization in approach between different levels of government
- fairness between large and small mining companies
- the increasing use of surtaxes in the Income Tax system
- the role of GST in reducing demand for mineral-based products

b) Other considerations

- public impression that the industry does not pay its fair share of taxes

c) Questions

- Can any industry in Canada expect public support for lowered taxes when individuals pay 90 percent of tax revenues raised?
- Are taxes the only basis on which the industry should compare itself with its major competitors? What about social benefits in the host country?
- Are taxes applied to the right factors in mining activity?

3.4 Attracting Investors

a) National issues

- . individual or large-scale investors: pros and cons
- . Canadian or off-shore investors
- . interest rates and the level of the Canadian dollar
- . elimination of Dividend Tax Credit for investment in Canadian-owned corporations
- . native groups taking an equity position, as a result of land claims settlements
- . dividends are not enough: experience has shown that investors now look at a social bottom line as well (e.g. question of investments in South Africa; environmental record; women appointed to the Board, etc.)
- . Canadian demographics: implications of an aging population; two-income earners; population growth only through immigration

b) Other considerations

- . supply, demand and the individual investor: the impact of GST on purchasing power for manufactured goods and disposable income for investment

c) Questions

- . Apart from attracting new investors, is the industry acting in such a way as to retain the investors it now has?
- . How much was the industry hurt by the elimination of the Dividend Tax Credit for Canadian-owned corporations?

WORKSHOP TOPICS

4. CHALLENGES IN MINERAL EXPLORATION

4.1 Exploration and Alienated Lands

a) National issues

- . different categories of restricted lands
- . lack of harmonization of standards across the country
- . time taken to settle native land claims
- . the review process in an age of "one-issue" politics
- . changing social values toward wildlife, the environment and native peoples
- . difficulties associated with exploration in fragile ecologies and hostile environments (the Arctic, offshore, wetlands)
- . lack of historical data from which to determine long-term damage to lands, especially in fragile ecologies

b) Other considerations

- . stewardship of resources for future generations: whose concern, responsibility
- . the need for on-going geoscientific data as an underpinning to exploration

c) Questions

- . Has the mining industry sufficiently educated governments and the public to the need for on-going exploration, to determine long-term potential?
- . Why are exploration incentives required: is it not something the industry should be doing automatically?
- . How much in the way of minerals should we seek from new sources, and how much from recycling?

4.2 Mineral Commodity Reserves

a) National issues

- . need for constant upgrading of geoscientific data bases
- . need for harmonization of data bases dealing with geoscientific and geological features
- . offshore vs. land-based reserves: the relative potential of each
- . ownership of the "lands" in question
- . ease of extraction and on- or near-site processing
- . expected future use of the various commodities
- . need for feedstocks for smelting
- . credibility of the estimates in Canada and abroad
- . lead time required to define the deposits

b) Other considerations

- . the "running out of minerals" scenario
- . potential from recycling and alternative uses, as against new extraction
- . enhancements in technology for determination of reserves and extraction: robotics, artificial intelligence programs

c) Questions

- . In the determination of reserves, is the activity set by government geoscientific programs, commodity prices or industry priority? How should it be determined?
- . Is the industry using automated processes to their full, in the interpretation of geoscientific data?
- . Should Canada try to develop a consensus on a desirable level of recycling, as against extraction of new resources in the case of certain commodities?

4.3 Mineral Exploration at Home or Elsewhere

a) National issues

- . political stability as a factor in overseas investment
- . ease of access to deposits in many Third World countries, as opposed to domestic deposits
- . exporting capital and technology as opposed to using it at home
- . Canada has to compete with other developed countries to exploit the resources of developing countries
- . fiscal policy
- . regulatory framework
- . energy costs, labour costs
- . needed infrastructure for exporting from Third World countries: road systems, railways, ports

b) Other considerations

- . international attitudes toward Canadian companies: are we good corporate citizens abroad?
- . the internationalizing of the environment issue

c) Questions

- . Drug companies have been accused of dumping surplus or untested products in Third World countries: is the mining industry vulnerable to criticism of exporting its pollution by moving processing facilities to countries with lower environmental protection standards?
- . Free Trade with Mexico: can the mining industry afford to remain in Canada?
- . Is Canada capitalizing sufficiently on our technological expertise in mining and smelting, on the international scene?

4.4 Government Intervention

a) National issues

- . the complex nature of government intervention: subsidies, grants and contributions; tax exemptions, deductions and credits; rules of the game; social programs; labour standards
- . frequent changes in the rules
- . confusion from different forms and philosophies of intervention
- . federal/provincial development agreements
- . need for reduction of paper burden; streamlining of processes
- . GATT, trade negotiations, the Free Trade Agreement
- . cartels, pressure groups

b) Other considerations

- . the need for governments to account to the people for tax expenditures made to industry groups
- . the need for governments to balance economic and social interests of the population
- . retaliation for unfair practises abroad

c) Questions

- . Is is "intervention" when governments bring in measures to benefit the mining industry, or only when they are favouring some other group?
- . How can governments ensure public accountability by industry groups receiving tax exemptions, deductions or credits without excess paper burden?
- . Who determines the national interest, in matters of government incentives, tax breaks and support programs for industry?

4.5 Level of Exploration and Fiscal Policy of Governments

a) National issues

- . interest rate policy
- . level of the Canadian dollar
- . the role of commodity prices in driving exploration
- . confusion resulting from short-term changes in the rules
- . confusion resulting from different approaches in different jurisdictions
- . the determination of those minerals warranting further exploration: who leads? who follows?
- . contribution of automation/high technology to reducing exploration costs

b) Other considerations

- . incentives provided through Mineral Development Agreements

c) Questions

- . In response to media questions on the Free Trade Agreement, James Baker said that Canada "would not be unfair" in letting its dollar sink to gain a trade advantage. Is there, in fact, a side deal to keep the dollar high that is penalizing exporters such as the mineral industry?
- . Would higher inflation in Canada help or hinder the mining industry?
- . Is there a "Canadian economy" any more, or is it simply the Canadian portion of the world economy?
- . Do Mineral Development Agreements reflect the fiscal policies of the governments involved, or are they something apart?

4.6 Role of Prospector and Junior Exploration Company

a) National issues

- . increased costs of doing business
- . effects of fiscal policies and commodity prices
- . increasing use of high-technology in support of smaller companies; becoming cheaper, and portable
- . decreasing costs of software for interpreting data
- . government incentives, direct or indirect
- . attracting and retaining investors
- . length of time between exploration and extraction activity
- . need for constant updating of geoscientific data bases

b) Other considerations

- . need to ensure that any incentives actually result in exploration activity
- . the role of automated data bases

c) Questions

- . In the light of the increasing costs of securing investors and decommissioning mines, can "juniors" compete?
- . Is there a role for juniors on a regional basis through the Mineral Development Agreements?
- . Are appropriate mechanisms in place for sharing of data and information that are not commercially confidential, which could be of value to smaller companies?

WORKSHOP TOPICS

5. PUBLIC PERCEPTION OF THE MINERAL INDUSTRY

5.1 Defining the Problem

a) National issues (Source: Angus Reid poll)

- . lack of understanding of level of Canadian ownership
- . uncertainty that mining industry is paying fair taxes
- . impression that mining is a major source of pollution
- . mining executives not trusted; they and governments are the least credible spokespersons, environmental groups the most credible
- . belief that Canada's mining industry is no better in terms of productivity, environment or safety than that of other countries
- . little understanding of high-tech nature of mining

all of which leads to

- . support for increased government regulation and inspection of mines

b) Other considerations

- . lack of concerted strategy to counter public impressions

c) Questions

- . Do we understand that in terms of public opinion, the "perception" is the "reality", and we must work to change the perception, rather than attack those who hold it?
- . Have we constructed an appropriate fact/data base from which to launch such a campaign?
- . Is there a parallel group that has been more successful in turning around a public image, and from which we could learn? (i.e. seal hunt? native trappers? nuclear industry?)

5.2 The Audience

a) National issues

- . Canadians are 35% Pro-industry; 45% Concerned; 20% Antagonists
- . only in BC does the Pro-industry segment predominate (43%); it is the lowest group in Quebec (24%), and Antagonists are the highest (25%)
- . women are over-represented in the Concerned and Antagonist groups
- . the Pro-industry group has higher education and income levels, and tends to be found in mining communities; they believe the industry has made progress in health, safety and environmental matters
- . the Concerned group is prepared to listen to arguments; the Antagonists less so

b) Other considerations

- . on mining issues, the general public will listen to news media, union leaders and industry associations more than they will listen to governments or mining executives
- . the residents of mining communities will listen first to industry associations, then union leaders, with the federal government the least credible source

c) Questions

- . Is the mining industry's attitude toward women such that it will persuade them to be more supportive of the industry?
- . Should we be considering a national campaign, or one based on regions/provinces according to the attitudes in each?
- . Should we capitalize on the fact that the residents of mining communities are more supportive? ("to know us, is to love us") If so, how?

5.3 The Message

a) National issues

- . concern for the environment is a "top of mind" issue for Canadians
- . the changed attitudes of the industry toward the environment and worker health/safety have not been adequately communicated to the public
- . several "messengers" whom we would normally rely on are not credible in the public mind; those who are, are unlikely to carry our message
- . Canadians have an intrinsic understanding of the contribution of mining to the national economy; they know that Canada is a major source of mineral wealth
- . the high level of Canadian ownership, comparatively high wages and high-technology features of mining are positive features to be communicated

b) Other considerations

- . job creation figures
- . recovery of metals through recycling

c) Questions

- . How can we link our positive messages with credible spokespersons?
- . Do we have practical demonstrations of our commitment to the environment that could serve in public information campaigns, i.e. land recovery for recreational use; new uses for otherwise deleterious by-products, i.e. CANMET's experiments in the use of fly ash?
- . What are the most effective vehicles for carrying our message to key audiences, in terms of cost, reach and credibility?
- . How can we expect to be credible on environment issues when we describe The Green Plan and Hazardous Waste restrictions and the Transportation of Dangerous Goods Act as "worrisome initiatives"?

5.4 Dealing with the Intolerance of Critics

a) National issues

- . critics are articulate and have access to the media
- . this is the age of one-issue politics; critics do not have to rationalize positions among competing issues as do governments or industry-wide bodies
- . the issues can often break along politically partisan lines, but the resolution of them will demand the cooperation of governments of all parties (i.e. the Pro-industry group is weighted toward the Liberal Party; the Concerned group toward Progressive Conservatives and the Antagonists toward the NDP)
- . Canadians have traditionally reacted more positively toward leadership on an unpopular issue than to absence of leadership for fear of provoking a negative response; running from critics has never gained supporters

b) Other considerations

- . facts alone will not change opinions; facts will be accepted or rejected according to the underlying value set of the audience
- . critics of the mining industry have the "value set" on their side in raising environmental and health/safety concerns; we cannot ignore that context

c) Questions

- . Are our critics in fact "intolerant" or are they simply mirroring public attitudes that we don't like?
- . Is our branding them "intolerant" helpful to the dialogue that must occur if we are to educate the public?
- . Have we genuinely tried to open a dialogue with them?
- . In this age of "politically correct" stances, which of our positions would qualify?

5.5 Strategies for Improving Public Perception

a) National issues

- . we have some "good news" stories to tell
- . the environment will continue to be the over-riding issue for the coming period
- . the mining industry needs government, but governments are not credible
- . since it is unlikely that we will ever turn around our critics, we should try to consolidate support among the positive elements and swing the middle group on-side by answering their concerns about environmental, health/safety and employment matters
- . we need solid programs of monitoring, tracking and evaluation to measure progress against our goals
- . we need issues management skills to keep the strategy on course

b) Other considerations

- . business as a whole in Canada is suffering from loss of public support for various reasons: its support for the Free Trade Agreement, its handling of the environment, the aura of corruption left over from bank failures, stock scandals, etc., and the mining industry suffers by association

c) Questions

- . What basic values in Canadian society can the mining industry appeal to, in order to gain some credibility and begin changing perceptions?
- . What is a reasonable time frame for changing public perceptions? Do we have a long-term strategy?
- . Does the industry agree on the long term goals of any communications strategy?
- . What feedback mechanisms are contemplated to keep industry informed of key messages, audiences and activities so that the communications strategy and plan remains cohesive?

WORKSHOP TOPICS

6. GLOBAL CONCERNS FOR THE MINERAL INDUSTRY

6.1 Competition and Environmental Regulations

a) National issues

- . political stability a factor in overseas investment
- . the internationalizing of the environment issue: Brundtland report, international watchdog bodies, increasing awareness on the part of the common people
- . exporting pollution to countries where the people do not have a voice in their government
- . exporting capital and technology rather than using it in the host country
- . environmental degradation does not respect boundaries: desertification; acid rain; Chernobyl fall-out; Great Lakes pollution
- . Canada has to compete with other developed countries to exploit the resources of developing countries

b) Other considerations

- . industrial growth in Third World countries leads to greater foreign dependence because of their need for raw materials and markets

c) Questions

- . Are Canadian corporations regarded as good corporate citizens in foreign countries?
- . If Canada's environmental regulations are really so stiff that they are forcing companies to look abroad, why are corporations like Mitsubishi so anxious to invest in Canada?
- . Is it really the regulatory framework that is sending Canadian companies abroad, and not the fact that deposits in many of those countries are easier to find than they are here?

6.2 Inter-country Trade in Recycled Mineral Materials

a) National issues

- . Geneva Convention prohibiting movement of "hazardous" substances frustrates efforts at international recycling
- . definition of "hazardous"
- . monitoring and compliance
- . signatories to the Convention; do they all respect it?
- . are different practises in effect for non-signatories?
- . need safeguards for handling in the recycling processes
- . how to ensure the material really is recycled and not simply dumped

b) Other considerations

- . the contribution of international recycling to "sustainable" development
- . sanctions against law-breakers haven't worked in the case of whaling, fisheries stocks, drug dumping: will they work for "hazardous" minerals?

c) Questions

- . Should we be setting international goals for recycling vs. new extraction?
- . Should we be trying to manufacture articles from materials easiest to recycle?
- . As the metal component of many emerging products diminishes, will recycling be a profitable exercise in 20 or 30 years?

6.3 Consumption and Trade Patterns

a) National issues

- . definition of "strategic" commodities: decided by price levels, industry demand or public policy?
- . stockpiling of strategic commodities for military or political reasons
- . dependence of Third World countries on exports (e.g. Zambia, which exports over half its national income)
- . GATT and other trade barrier negotiations
- . cartels
- . increased consumption in Third World countries leaving less for developed countries to tap
- . resources and reserves: reliability of estimates in Third World countries

b) Other considerations

- . the "running out of minerals" scenario
- . tied aid: forcing countries to buy our surplus products, e.g. potash

c) Questions

- . Are we a consumer or conserver society?
- . Have the developed countries any moral grounds for urging conservation on countries trying to pull themselves out of poverty, in the light of our own post-WWII consumption?
- . As a society, are we doing sufficient advance planning against shortages of key minerals in a foreseeable future?
- . Based on the experience with tin, can we safely conclude that cartels are not effective in bringing about price stability?

6.4 Non-traditional Uses of Mineral-based Materials

a) National issues

- . knowledge-sharing among industries, provinces, countries
- . Canada lagging in Research and Development
- . importance of attracting young people to careers in the earth sciences and engineering
- . need for greater links between public policy, the universities and industry
- . rewards for innovation: part of the Canadian scene?
- . "value added" from non-traditional uses, as a companion to recycling

b) Other considerations

- . Canada's branch plant economy
- . "sustainable development" encourages the search for value added applications

c) Questions

- . Is innovation likely to come from the large or the smaller corporations?
- . Is the search for alternative uses built in to our approach to mining and minerals as a matter of course?
- . Have we taken any steps to identify the commodities most suitable for study, in the search for alternative uses?

6.5 Trends in Mineral Commodity Usage

a) National issues

- . new and emerging specialty commodities used for ceramics, plastics and high-technology metals
- . metals as a secondary component of emerging products
- . hazards/cost associated with some emerging products
- . Canadian demographics (aging population; two-income families; immigration patterns; family formation rates; women as sole family support) as a factor in demand patterns
- . worldwide demographics: increasing lifespan and reduced infant mortality; immigration and refugee patterns, and resulting expectations
- . restructuring of economic order in Eastern Europe: what impact?
- . energy costs as a factor in demand
- . use of new products for essentials or luxury goods
- . combination of taxes and the recession reducing demand in key industries (e.g. automobiles, housing)

b) Other considerations

- . increased demand for second-tier gold and base metal extraction from mature sites

c) Questions

- . Someone will always be willing to pay the price: who gets to benefit from the new products?
- . Is the definition of "strategic" changing in the light of geopolitical restructuring? Should it?
- . Increased processing in Canada: will we continue to sell it as coal and buy it back as cars?

REPORTS

WORKSHOP 1: MINING AND THE ENVIRONMENT

1. Regulatory Environment

a. Observations:

- There is a need for harmonization of environmental regulations.
- EARP is creating process duplication, constitutional uncertainty, and un-necessary developmental impediments.
- Greatest financial cost of compliance or environmental regulation is related to time delay.

b. Recommendations:

- Two levels of government must co-operate to harmonize environmental regulation so that there is one review process.
- The Federal government should recognize the responsibility of Provinces to manage their natural resources.
- Groups concerned about Bill C-13 should raise concerns to the legislative review committee and also in workshops being conducted this fall.

2. Liability Issues

a. Observations:

- Corporate environmental policies are important in demonstrating due diligence. They must be taken seriously as they set a minimum expectation. Employees must become involved.
- There are varying approaches around the country on dealing with the issues of environmental liability. The practice of assigning liability for past problems to current holders is costing society by discouraging work near old mines where the best ore potential is.

b. Recommendations:

- There is a need to work towards a uniform, practical approach to the issues of liability for past environmental problems. A study group is needed.
- Incentives of some form should be developed to encourage clean-up of old mine sites and not discourage such activity.
- There must be a practical process developed to recycle old mining sites, by freeing up liability and encouraging new work.

3. Land Use Issues

a. Observations:

- ° Access to land in Canada is becoming more restricted. The NATLUS project is a valuable means of collecting and displaying data on land use for policy development by government and exploration planning by companies.

b. Recommendations:

- ° Concern was expressed as to how NATLUS information is interpreted and the possibility of misunderstanding. A co-ordinating mechanism is needed between Provinces/Territories and MILUC to ensure information is presented accurately.
- ° A communications strategy is required for NATLUS to ensure the information is effectively used and not misunderstood - to ensure the right message is presented.

4. Native Affairs

a. Observations:

- ° It is important for joint industry/native consultation and co-operation right now in developing understanding of land use regimes to be implemented after settlement of claims.
- ° Traditional land use values are not being adequately reflected in environmental reviews at present.

b. Recommendations:

- ° Land use assessments and standards must be sensitive to traditional use of land and cultural values of natives and others, and should not simply reflect technical criteria related to environmental protection.

HUMAN RESOURCES IN THE MINING INDUSTRY : WORKSHOP 2

The mineral industry faces a number of challenges in the human resources field in order to remain competitive. The group discussed a number of independent and interrelated factors contributing to the ability of the industry to attract and retain people.

1. Mines have a finite life. Individuals may have to work at several different locations during their career.

This means that in some cases employees who make an investment in a home where a mine closes may lose that investment.

Some members of the group suggested that companies and government should be prepared to meet the resulting financial obligations. They also suggested that companies should prepare their workforce for closure by providing employees with periodic status reports on the operation.

2. The nature of the jobs in the mineral industry is changing with fewer but more highly skilled employees being required. This conflicts with the relatively low education levels of the current workforce.

It was suggested that government, labour and companies should invest in retraining current workers as a priority.

Much of the current work force is aging and new workers will have to be attracted to the industry. There is concern about the type of training young people receive from our educational institutions vs the requirements of the industry. This problem has resulted in oversupplies or undersupplies of graduates in a number of technical fields.

3. The ability of the industry to attract new employees is hampered by the negative public perception of the mining related jobs.

Some members of the group cited teachers as a major factor in attracting people to the industry. They suggested providing teaching materials on the mineral industry to the schools.

4. Industrial disease is a concern to both employees and the companies. It was suggested that current practices relating to worker's compensation result in industry and workers being placed in a confrontational position making solutions difficult.

It was emphasized by many members of the group that workers must be made aware of the risks in the workplace. They suggested research by both government and industry is required to better define these problems. They also suggested medical personnel require training to recognize industrial diseases.

5. The industry employs relatively few aboriginal people. A number of examples of case studies, native demographics and the results of a questionnaire have been summarized in the IGWG Paper on Native Involvement in the Mineral Industry.

A key factor in low native employment cited by the group is the relative low education levels of aboriginal people. Training programs are an imperative. The group suggested that individual native communities require different approaches. Companies can assist aboriginal people in adapting to the industry by providing flexible working conditions that recognize traditional life styles.

Recently labour has assisted in increasing native involvement in the industry by accommodating aboriginal cultural differences.

6. The industry attracts relatively few women. Further effort is needed to attract women to these non-traditional jobs.

In summary, the group discussed a number of ways to attract and retain more people to the industry. These included a softening of the impacts of mine closure, retraining current workers to changing job requirements, improving the public perception the industry, dealing with industrial diseases and increasing the number of aboriginal people and women in the industry.

Workshop 3

FINANCIAL CONCERNS OF THE MINERAL INDUSTRY

3.1 Reclamation Funding (Main Issue)

Payments be deductible and annual fund earnings are not taxed during accumulation. Excess funds would be taxable.

3.2 Mineral Exploration Incentives (No magic solution)

A. Improve "incentive":

- i) because of lack of good exploration targets in Canada, support government incentives for real grass roots exploration (not advanced exploration)
- ii) proper securities regulations
- iii) tax-based incentives, rather than cash grants
- iv) reduce capital gains taxes

B. Can investment climate be improved without incentives?

- i) by lowering "artificial" value of Canadian \$
- ii) land access issue
- iii) environmental "impediments"
- iv) efforts by foreign countries
- v) R/D: MITEC

3.3 Mining Taxation (Short shrift)

- Fully harmonized system difficult to achieve. Mine Assessors meet annually, however.
- Level of mining taxes not foremost issue facing industry

3.4 Attracting Investors (Important to solve)

- Industry and provinces wish to return to "Consultative Process", especially to meet with the Finance Minister.
- Lower interest rates, lower dollar exchange rate
- Current offshore flows of investment funds
- Government Gold sales

WORKSHOP 4

CHALLENGES IN MINERAL EXPLORATION

Exploration is the lifeblood of the mining industry. There was general concern about declining reserves/inadequate exploration for future. New exploration is needed to meet future demands for minerals.

Exploration at home and abroad

- ° More immediate opportunities abroad
- ° Unattractive fiscal and land policies in Canada
- ° Notwithstanding opportunities created by liberalization of third-world countries, need to emphasize Canada's great remaining mineral potential

Exploration and alienated lands

- ° "Political" risk associated with "restrictive" designations - if a deposit found, can it be mined?
- ° Difficulty of evaluating before designation - evaluation is never complete!
- ° Is it viable to adopt a strategy of multiple use with acceptance of operational restrictions in sensitive areas?
- ° Delays in settling land claims are a concern. However, most felt that, in time, industry can develop a good relationship with natives.

Bottom line is:

- integrated resource management
- settlement of Land Claims

Fiscal Climate

Fiscal climate is not attractive. The case for exploration incentives needs a stronger rationale based on "first principles".

Ideas include

- ° Support for federal -provincial MDA's to up-date geo-scientific data bases
- ° Encourage Prospectors' assistance programs
- ° Base fiscal and monetary policies on the needs of Canada's resource industries
- ° Tax system should recognize high-risk activities such as mining

Regulation

Foster true "single-window" regulation led by Mines Ministries. Eliminate federal-provincial duplication.

BRIEF REPORT ON WORKSHOP 5

PUBLIC PERCEPTION OF THE MINERAL INDUSTRY

HON. MAURICE BYBLOW - Co-Chair

ISABELLE MULLIGAN - Co-Chair

PAUL DEAN - Secretary

- ° There is a recognition and acknowledgement that the public perception of the mineral industry is currently very negative in Canada.
- ° There are many reasons for this, the first one being the legacy of the mining industry from a time when it cared less for the environment, for workers, for health and safety and mining communities. The problem is further enhanced by the fact that a few mining companies are continuing on with the attitudes and practices of the past and the public does not generally differentiate between companies.
- ° The industry is still viewed as a major polluter in Canada, e.g., the Inco smokestack is always shown as a major contributor to acid rain.
- ° There is a perception that Canada does not need a mining industry and there is little appreciation of its economic contribution to Canada or the use of metals and minerals in everyday lives. There is little recognition of the improvements that have been made in recent years with respect to the environment, health and safety and new technologies. The good news stories are not getting out to the general public or the message is not being focused.
- ° There is an obvious need for immediate action on this issue as well as a longer term strategy to educate the public on the importance of the mineral industry and its products in a modern society.
- ° Important target audiences include the general public, the media, educators, and more particularly workers, mining communities and community organizations.
- ° Industry should meet the public and the media head-on and be less defensive in its approach to media. The sins of the past need to be acknowledged but the real stories of today's modern mining industry need to be told. We need to change the perception, not the people who have the perception.
- ° Industry must set standards and comply with those standards if it is to have credibility. If there is no performance, there should be no public relations efforts. Public relations efforts should relate to real accomplishments.

- ° Action on this issue is being taken by the Mining Association of Canada, some provincial/territorial industry organizations and some provincial/territorial governments. The efforts by the province of Nova Scotia and Energy Mines and Resources Canada under the Mineral Development Agreements present a good model for action by provincial and territorial governments.
- ° Educational programs are very necessary for long-term objectives but there is immediate need for action by industry. MAC has developed a proposed program and a strategy to address the issue of public perception.
- ° There is a need for a national co-ordinating agency to exchange information, ideas and strategies with industry associations and governments.
- ° The workshop members and co-chairs recommend that ministers establish a sub-committee of officials to work with industry associations to address various means of enhancing the mining industry's reputation and to report to ministers at next year's conference.

Workshop 6

Global Concerns for the Mineral Industry

It was decided at the outset that the assigned issues needed to be reworked into the following:

1. Globalization of the World Economy
2. Supply and Demand Issues
3. Investment Issues
4. Mining and the Environment

1. Globalization of the World Economy

- economies are not national any more, we are moving toward a global economic web
- mining, as with other industries, is increasingly controlled by transnational corporations
- in light of this, the major factors affecting the development of the industry are:
 - ° regulatory framework (especially environmental)
 - ° information flow (availability of geological data, global access to data)
 - ° political stability
 - ° lead time to bring mineral deposit to production
 - ° access to capital
- to the extent that a new world order results in increased political stability, competition will be keener
- in the shorter-term, political stability in Eastern Europe will not likely be realized, but in the longer-term, the area will probably be a major world player in the resource sector

2. Supply and Demand

- scarcity of minerals, especially metals, will not be a major issue in the near future - scarcity is seen as a function of price
- in fact, most commodity prices have declined over the past several years due to:
 - ° recycling
 - ° substitution
 - ° new technologies

- there are unknown factors, however, that can affect the cost, and therefore the supply and demand of refined minerals:
 - ° energy input costs
 - ° world population growth (especially affecting scarce minerals)
- effects due to changes in Eastern Europe are hard to predict:
 - ° need for hard currency may increase supply of minerals
 - ° infrastructure rebuilding will increase demand
 - ° net effect may be positive
- end of cold war may increase supply of minerals, especially metals
- processing will increasingly involve recycling (50% of new steel is from scrap) which will reduce demand for ore - but major issue of hazardous waste transport must be addressed

3. Investment Issues

- development and production investment will tend to go to where there are quality deposits, acceptable regulatory requirements and political stability
- there are several known large mineral deposits where development costs are orders of magnitude lower than in Canada - may be offsetting the risk associated with political instability
- certain other countries' investment codes are attractive to foreign investment, whereas Canada's codes are increasingly seen as obstacles
- we need more data to fully understand what is happening with world mining investment
- from an economic development perspective, we should be looking at competitive VALUE ADDED. Canada is better positioned for competitive value added in the primary sector rather than in manufacturing
- the issue of burgeoning public debt and the cost of its service makes Canadian operating costs less competitive.
- perpetual liability in mining is a serious issue affecting investment

4. Environment

- we've got to find the right balance between economic development and environmental issues
- there are opportunities to be competitive and deal with environmental impacts
- the industry has a major challenge in dealing with the "Environmental Fundamentalist" phenomenon. Public credibility is higher with environmental groups and academia when compared to government or industry. How do we deal with public perception?

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Thèmes et rapports des ateliers

HALIFAX (Nouvelle-Écosse)
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VEUILLEZ NOTER

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1. LES MINES ET L'ENVIRONNEMENT

1.1 Contexte réglementaire

a) Questions d'intérêt national

- . Uniformisation insuffisante entre gouvernements (ex.: barrage Rafferty); retards provoquent la confusion.
- . Peu de précédents juridiques dans le domaine : appels et contestations.
- . Connaissance limitée des répercussions sur divers milieux - milieu arctique, zones au large des côtes, zones de tremblements de terre, bouclier canadien, etc., qui nécessitent de solides études géoscientifiques.
- . Impératifs géographiques : lacs qui sont à cheval sur les frontières, rivières qui traversent des frontières, déplacement des masses d'air au gré des vents dominants, etc.
- . Coûts (en temps et en ressources humaines) des divers mécanismes d'évaluation environnementale.
- . Amendes et sanctions.

b) Autres questions

- . En ce qui concerne les règlements de protection de l'environnement, aucun gouvernement au Canada ne devance l'opinion publique.
- . Recyclage versus les nouveaux traitements.

c) Questions

- . Compte tenu de la gamme de normes au Canada, les gouvernements provinciaux sont-ils vraiment convaincus des vertus du recyclage?
- . Comment pouvons-nous garantir un apport au mécanisme de réglementation au moment opportun?
- . Partageons-nous notre expérience de façon à favoriser une meilleure élaboration des normes?

1.2 Risques

a) Questions d'intérêt national

- . Entreprises versus personnes.
- . Application rétroactive des dispositions législatives et des règlements.
- . Déductibilité des contributions aux fonds créés.
- . Normes requises pour les mines abandonnées, non exploitées et nouvelles.
- . Supposition de la responsabilité rétroactive en raison des fusions et des acquisitions.
- . Amendes et sanctions.

b) Autres questions

- . Aucun précédent international en matière d'élaboration de normes.
- . Aucune police d'assurance qui prévoit la remise en état.
- . Recherche de moyens financiers appropriés pour financer la remise en état, la désaffectation et les travaux qui suivent la fermeture.
- . Programme de neutralisation des eaux et du drainage dans l'environnement minier.

c) Questions

- . Le public acceptera-t-il l'argument du "coût" pour justifier un abaissement des normes de protection de l'environnement? Devrait-il?
- . Qui est responsable de la mise au point des techniques appropriées de remise en état des mines?
- . Les amendes imposées actuellement ne sont-elles pas simplement des "permis de pollution"?

1.3 Droits territoriaux des autochtones

a) Questions d'intérêt national

- . Multiplicité des gouvernements nécessaires pour s'occuper des indiens de plein droit, des indiens de fait (soumis aux traités, qui vivent ou non dans les réserves), des Métis, des Innu, des Inuit et des Inuvialuit.
- . Multiplicité des normes culturelles, des positions de négociation, des attentes.
- . Attitudes traditionnelles des autochtones envers la nature et les terres.
- . "Droits des autochtones" sont un concept relativement récent en jurisprudence nationale : le Canada joue le rôle de chef de file.
- . Temps nécessaire pour régler une revendication territoriale des autochtones.
- . Importance de l'exploitation minière canadienne à l'intérieur de terres contestées.

b) Autres questions

- . Confiance inexistante entre les autochtones et le gouvernement fédéral en raison des questions constitutionnelles en suspens.
- . Sympathie croissante du public à l'égard des autochtones à la suite des événements récents à Oka, à Temagami et ailleurs.
- . Médias s'intéressent davantage aux problèmes des autochtones.

c) Questions

- . Ne serait-il pas plus intéressant pour le Canada de faire participer plus activement les autochtones aux activités de l'industrie minière plutôt que de les indemniser pour avoir accès aux terres?
- . L'industrie minière est-elle mieux renseignée et équipée que l'industrie forestière pour affronter les autochtones en ce qui concerne les terres contestées? Le contexte est-il considérablement différent?
- . Quel serait le moyen approprié pour que les autochtones participent au débat permanent sur le problème minier?

1.4 Aménagement multiple du territoire

a) Questions d'intérêt national

- . Règlements relatifs à l'accès différents entre les gouvernements (ex.: parcs nationaux par opposition aux parcs provinciaux).
- . Géologie du Canada : aucune région ne peut être éliminée comme éventuelle source de minéraux.
- . Préoccupations du public pour la faune et l'environnement; on croit que l'industrie minière ne respecte pas l'environnement.
- . Définitions de faune, habitat, écologie sensible, etc.
- . Absence de données à long terme sur les taux de dégradation et de réhabilitation des milieux.
- . Terres qui peuvent subir plusieurs aménagements en même temps et celles où les aménagements doivent se succéder.
- . Régions éloignées : coûts liés à l'accès; les habitants, lorsqu'il y en a, on tendance à être des autochtones.

b) Autres questions

- . Présentation du CIMAT à la conférence sur le système national d'aménagement du territoire.
- . Expérience d'autres gouvernements.

c) Questions

- . Qui doit établir les priorités?
- . Est-ce dans l'intérêt du Canada d'avoir des normes différentes dans diverses provinces?
- . L'industrie accepte-t-elle le principe du maître d'oeuvre des ressources du Canada (minérales et biologiques) pour les générations ultérieures?

1.5 Mise en valeur des ressources au large des côtes

a) Questions d'intérêt national

- . Base de données géoscientifiques nécessaire.
- . Droit de la mer et autres lois et conventions internationales régissent l'exploration des terrains fragiles ou difficiles.
- . Litiges frontaliers : Juan de Fuca, mer de Beaufort. Le passage du Nord-ouest appartient-il au Canada?
- . Propriété des ressources : patrimoine canadien commun ou propriété des provinces?
- . Sécurité des travailleurs sur les plates-formes au large des côtes.
- . Prévention de la pollution par des produits nocifs.
- . Incidence sur l'industrie de la pêche.
- . Source canadienne de matériel et de services spécialisés.
- . Exportation de la compétence canadienne.

b) Autres questions

- . Encouragements à l'exploration.
- . Amener les produits à terre.

c) Questions

- . L'exploration minérale au large des côtes est-elle un moyen approprié de faire valoir la souveraineté canadienne?
- . Qui doit décider des priorités pour l'accès aux zones au large des côtes?
- . Les provinces maritimes doivent-elles avoir la priorité en ce qui concerne le traitement des minéraux recueillis au large des côtes?
- . Existe-t-il une infrastructure appropriée pour appuyer l'exploration minérale au large des côtes (ports et installations au large; installations de traitement; recherche et sauvetage; inspection des milieux écologiques; recherche géoscientifique permanente dans des domaines clés)?

1.6 Tendances futures en matière d'aménagement du territoire

a) Questions d'intérêt national

- . Normes deviendront probablement de plus en plus sévères pour répondre aux attentes du public en matière d'environnement.
- . "Développement durable" n'a toujours pas été correctement défini en matière de politique d'intérêt public.
- . Gouvernements devront de plus en plus jouer le rôle de médiateurs entre des secteurs opposés de la société.
- . Syndrome "Bambi" : les préoccupations du public pour la faune supplantent celles pour les terres.
- . Demande accrue de données géoscientifiques pour le processus décisionnel, ex. les systèmes d'information géographique.
- . Il faut ajouter la "valeur ajoutée" à tout argument en faveur d'un plus grand aménagement du territoire pour qu'il ait du poids.

b) Autres questions

- . Médias adopteront de plus en plus un rôle dynamique et subjectif plutôt que d'agir en tant qu'observateurs et commentateurs des événements publics.

c) Questions

- . En matière d'environnement au Canada, où est le terrain d'entente?
- . Qui sont les alliés de l'industrie minière en matière d'aménagement et qui sont ses opposants?
- . Le modèle de "réserves écologiques" de la Colombie-Britannique devrait-il être adopté partout au Canada?
- . L'industrie minière est-elle suffisamment habile en relations publiques pour faire valoir son point de vue avant les conflits et de façon à ce que demeure un certain bénéfice du doute?

2. LES RESSOURCES HUMAINES ET L'INDUSTRIE MINÉRALE

2.1 Travailleurs compétents : les attirer, les former et les conserver

a) Questions d'intérêt national

- . Préjugé canadien contre l'enseignement technique et les métiers manuels.
- . Quotas d'immigration ne sont pas liés à la demande de travailleurs.
- . Obstacles sociaux et les attitudes contre une plus grande participation des femmes à des métiers non traditionnels.
- . On juge que l'industrie minière n'est pas un "bon" employeur.
- . Il est difficile d'attirer des travailleurs compétents dans les régions éloignées.
- . Industrie en déclin (ex. Schefferville).

b) Autres questions

- . Démarche tripartite nécessaire: gouvernements, employeurs et syndicats.
- . Tendances cycliques du recrutement dans les universités.
- . Réduction des transferts aux provinces pour l'enseignement postsecondaire.

c) Questions

- . L'industrie entreprend-elle suffisamment une recherche à long terme, car il est préférable de prévoir la fluctuation des cours et de planifier les tendances de formation et les possibilités d'emploi.
- . La formation et le perfectionnement des employés comportent-ils une collaboration suffisante pour garantir un approvisionnement permanent de connaissances avancées.
- . L'image d'une industrie dominée par les hommes de race blanche nuit-elle aux efforts déployés pour attirer et conserver d'autres employés?

2.2 Maladies industrielles

a) Questions d'intérêt national

- . Interdictions et moratoires sur les minéraux nocifs et dangereux (amiante, uranium).
- . Indemnisation : qui paie la facture et quel montant?
- . Qui est exposé? Les travailleurs seulement, les habitants des collectivités minières, ceux qui ont des emplois en aval (transports, traitement), les habitants des collectivités voisines, etc.?
- . Pratiques de manutention sans danger : loi sur le transport des marchandises dangereuses, etc.
- . Chevauchements et lacunes des lois et règlements fédéraux et provinciaux.

b) Autres questions

- . Données de l'industrie minière comparées aux statistiques de mortalité de la population qui n'est pas reliée à cette industrie : maladies pulmonaires et cardiaques, les accidents de voiture versus les accidents industriels.
- . Recherche effectuée sur les nouveaux emplois de sous-produits dangereux : ex. la recherche de CANMET sur l'utilisation des cendres volantes.

c) Questions

- . L'industrie minière devrait-elle financer la recherche sur les maladies industrielles?
- . L'industrie minière fournit-elle une formation adéquate en manutention des produits dangereux?
- . L'industrie peut-elle espérer améliorer son image publique en affirmant que la Loi sur le transport des marchandises dangereuses et que les lois sur les produits dangereux sont des "mesures inquiétantes"?

2.3 Emploi des autochtones

a) Questions d'intérêt national

- . Tendances en matière d'éducation : différences culturelles, apprentissage différent; normes différentes entre les systèmes éducatifs des provinces, des territoires et des Affaires indiennes.
- . Démographie : jeunesse relative de la population autochtone par rapport au reste de la population.
- . Formation technique non disponible en général à proximité des réserves.
- . Conflit entre les activités traditionnelles des autochtones (saisonniers, nomades) et la participation prévue de la main-d'oeuvre.
- . Conflit entre des concepts différents d'identité individuelle et collective par rapport à un milieu de travail hiérarchisé.

b) Autres questions

- . Bandes et collectivités autochtones achètent des actions de sociétés minières.
- . Chevauchement des avantages sociaux offerts souvent par les employeurs, comme les régimes d'assurance maladie et dentaire, pour différentes catégories d'autochtones (de plein droit, non inscrit, habitant ou non dans une réserve, etc.).

c) Questions

- . Comment l'industrie peut-elle s'assurer que l'on tient compte des préoccupations autochtones au cours du débat permanent sur l'avenir de l'industrie?
- . L'industrie minière offre-t-elle des bourses d'étude à des autochtones étudiant à l'université dans des disciplines connexes ou considère-t-elle les autochtones comme des travailleurs manuels?
- . Compte tenu des différents concepts d'identité individuelle et collective, existe-t-il un conflit d'intérêt lorsque des bandes ou des collectivités possèdent des actions dans des entreprises qui embauchent certains de leurs membres?

2.4 Emplois cycliques dans l'industrie minière

a) Questions d'intérêt national

- . Demande créée par les cours n'est pas régit par l'industrie ou le Canada.
- . Absence de possibilités d'emploi dans les régions minières.
- . Exportation d'emplois dans les régions où la main-d'oeuvre est bon marché : incidence de l'Accord de libre-échange.
- . Expansion dans les régions où les normes de protection de l'environnement sont moins sévères : exportation de notre pollution.

b) Autres questions

- . Création d'emplois dans les secteurs des ressources naturelles par opposition aux autres secteurs depuis trois ou quatre ans.

c) Questions

- . La situation risque-t-elle de changer un jour? L'industrie minière devrait-elle consacrer autant de temps à discuter d'un problème qui lui échappe totalement?
- . Est-il possible de diversifier les structures d'emploi régionaux pour atténuer l'incidence des cycles?
- . L'Accord de libre-échange et la récession feront-ils à nouveau des Canadiens des "bûcherons et des ouvriers manuels"?

2.5 Programmes universitaires en géologie et en génie minier

a) Questions d'intérêt national

- Chute des inscriptions; réduction ou annulation des programmes.
- Nécessité d'une attitude plus positive à l'égard des femmes de la part des ingénieurs et des géoscientifiques.
- Réduction des transferts provinciaux à l'enseignement postsecondaire.
- Autres obstacles fiscaux à l'enseignement universitaire: ex. TPS sur les livres et les prêts aux étudiants.
- Querelles des universités sur la taille du programme plutôt que de tenter de rationaliser les cours.
- On juge que l'industrie minière est en déclin et qu'elle n'est pas un bon employeur.

b) Autres questions

- Québécois ne se sont jamais beaucoup intéressés aux sciences de la Terre.

c) Questions

- Que peut faire l'industrie minière pour attirer et conserver les femmes dans ses rangs sans attendre les rapports spéciaux comme celui de la commission d'enquête sur les femmes et l'ingénierie?
- Que fait l'industrie minière à l'école secondaire pour encourager les étudiants à choisir des carrières dans ce domaine? A-t-elle présenté la réputation internationale du Canada en techniques minières pour encourager les étudiants à travailler dans le secteur minier?
- Quelle est l'attitude de l'industrie minière à l'égard du concept des "centres d'excellence" par opposition au programme pluridisciplinaire des universités?

3. LES PRÉOCCUPATIONS FINANCIÈRES DE L'INDUSTRIE MINÉRALE

3.1 Financement de la remise en état

a) Questions d'intérêt national

- . Fonds obligatoires : leur nécessité et la déductibilité des contributions.
- . Nature des garanties financières.
- . Absence de garanties appropriées.
- . Garanties des entreprises versus les garanties individuelles : est-ce que certains d'entre nous seront un jour en prison?
- . Normes : niveaux et rétroactivité de l'application.
- . Exigences différentes pour des mines différentes : sécurité des lieux; effluents; dégradation des lieux au cours des années.
- . Uniformisation nécessaire des normes entre gouvernements.
- . Nécessité de solides connaissances géoscientifiques pour établir des normes.

b) Autres questions

- . Responsabilité rétroactive des sociétés minières en cas de fusions et d'achats.
- . Comparaison des normes entre gouvernements.
- . Manque de connaissances scientifiques à long terme sur la dégradation des mines.

c) Questions

- . Quelle est la responsabilité d'autres industries (pétrolière, forestière) en matière d'assainissement?
- . Le public canadien est-il préoccupé par le fait que les normes sont moins sévères ailleurs? Devrait-il l'être?

3.2 Encouragements à l'exploration minérale

a) Questions d'intérêt national

- . Sources de financement : public ou privé.
- . Nature de l'encouragement gouvernemental : subvention ou contribution; exonération, retenue ou crédit d'impôt; dépréciation accrue permise; autres.
- . Comment s'assurer que les fonds sont vraiment consacrés à l'exploration.
- . Stabilité nécessaire des régimes fiscaux pour une planification à long terme.
- . Uniformisation du traitement fiscal entre les gouvernements au Canada.

b) Autres questions

- . Récupération par le recyclage versus une nouvelle extraction.
- . Comparaison avec les compétiteurs d'autres pays.
- . Comparaison avec les encouragements que reçoivent d'autres industries des ressources au Canada.

c) Questions

- . Comment pouvons-nous créer un climat d'investissement intéressant pour l'exploration en l'absence d'encouragements directs?
- . Les encouragements dépasseront-ils les cours des produits comme facteur stimulant l'exploration?
- . Les encouragements à l'exploration sont-ils conformes aux dispositions de l'Accord de libre-échange?

3.3 Impôts sur les mines

a) Questions d'intérêt national

- . Comparaisons avec d'importants compétiteurs.
- . Comparaisons avec d'autres industries des ressources au Canada.
- . Uniformisation de la démarche entre divers ordres de gouvernement.
- . Équité entre des sociétés minières, grandes et petites.
- . Recours accru aux surtaxes dans le régime fiscal.
- . Rôle de la TPS comme facteur de réduction de la demande de produits minéraux.

b) Autres questions

- . Public a l'impression que l'industrie ne paie pas sa part d'impôts.

c) Questions

- . Une industrie au Canada peut-elle s'attendre à ce que les Canadiens appuient une baisse des impôts miniers lorsque les contribuables sont à l'origine de 90 p. 100 des impôts recueillis?
- . Les impôts devraient-ils être le seul facteur de comparaison de l'industrie avec ses principaux compétiteurs? Que faire des avantages sociaux du pays hôte?
- . Les impôts s'appliquent-ils aux facteurs appropriés de l'activité minière?

3.4 Attirer les investisseurs

a) Questions d'intérêt national

- . Investisseurs individuels ou entreprises : avantages et inconvénients.
- . Investisseurs canadiens ou étrangers.
- . Taux d'intérêt et le cours du dollar canadien.
- . Élimination du crédit d'impôt pour dividendes à des fins d'investissement dans des sociétés à intérêts canadiens.
- . Groupes autochtones achètent des actions dans la foulée du règlement des revendications territoriales.
- . Dividendes ne suffisent pas : l'expérience a démontré que les investisseurs se préoccupent également de facteurs sociaux minimaux (ex.: investissements en Afrique du Sud; respect de l'environnement; nomination de femmes aux conseils, etc.).
- . Démographie canadienne : incidence d'une population vieillissante; ménages à deux revenus; croissance démographique grâce à l'immigration seulement.

b) Autres questions

- . Offre, demande et investisseur : incidence de la TPS sur le pouvoir d'achat et sur le revenu qui peut être investi.

c) Questions

- . À part le fait d'attirer de nouveaux investisseurs, l'industrie agit-elle pour conserver ses investisseurs?
- . Dans quelle mesure l'industrie a-t-elle été touchée par l'élimination du crédit d'impôt pour dividendes de sociétés appartenant à des intérêts canadiens?

4. LES DÉFIS DE L'EXPLORATION MINIÈRE

4.1 Exploration et terres aliénées

a) Questions d'intérêt national

- . Catégories différentes de terres à accès limité.
- . Uniformisation inexistante des normes au pays.
- . Temps nécessaire au règlement des revendications territoriales des autochtones.
- . Mécanisme d'examen à une époque des orientations à un seul thème.
- . Évolution des valeurs sociales vers la faune, l'environnement et les autochtones.
- . Problèmes d'exploration dans les milieux dont l'écologie est fragile et dans les milieux difficiles (l'arctique, au large des côtes, milieux humides).
- . Manque de données historiques pour déterminer la dégradation à long terme des terres, notamment dans les milieux dont l'écologie est fragile.

b) Autres questions

- . Maîtrise des ressources pour les générations ultérieures : qui s'en préoccupe et qui en est responsable.
- . Nécessité de données géoscientifiques permanentes pour étayer l'exploration.

c) Questions

- . L'industrie minière a-t-elle suffisamment sensibilisé les gouvernements et le public à la nécessité d'une exploration permanente afin de circonscrire les réserves ultérieures?
- . Pourquoi des encouragements sont-ils nécessaires? Ne devraient-ils pas être automatiques?
- . Que devons nous tirer des nouvelles réserves ou du recyclage?

4.2 Réserves de produits minéraux

a) Questions d'intérêt national

- . Amélioration constante et nécessaire des bases de données géoscientifiques.
- . Uniformisation nécessaire des bases de données qui traitent des caractéristiques géoscientifiques et géologiques.
- . Réserves au large des côtes versus continentales: le potentiel relatif de chacune.
- . Propriété des terres en question.
- . Extraction facile et traitement sur place ou à proximité.
- . Emploi prévu des divers produits.
- . Nécessité de charges d'alimentation pour la fonderie.
- . Crédibilité des estimations au Canada et à l'étranger.
- . Temps nécessaire pour évaluer les gisements.

c) Autres questions

- . Scénario : épuisement des réserves.
- . Possibilités de recyclage et autres solutions par opposition à l'exploitation de nouvelles mines.
- . Améliorations technologiques pour évaluer les réserves et les exploiter : robotique, intelligence artificielle.

c) Questions

- . En matière d'évaluation des réserves, les travaux sont-ils fonction des programmes géoscientifiques gouvernementaux, des cours ou des priorités de l'industrie? Comment doivent-elles être évaluées?
- . L'industrie utilise-t-elle l'informatisation à sa pleine capacité lors de l'interprétation des données géoscientifiques?
- . Le Canada devrait-il tenter de recueillir un consensus sur un degré souhaitable de recyclage par opposition à l'exploitation de nouvelles mines pour certains produits.

4.3 Exploration minière au pays ou à l'étranger

a) Questions d'intérêt national

- Stabilité politique: facteur d'investissement à l'étranger.
- Accès facile aux gisements dans bon nombre de pays du Tiers-monde par opposition aux gisements au pays.
- Exportation du capital et des techniques plutôt que de s'en servir au pays.
- Canada doit concurrencer d'autres pays développés pour exploiter les ressources de pays en développement.
- Politique fiscale.
- Cadre réglementaire.
- Coût de l'énergie, de la main-d'oeuvre.
- Infrastructure nécessaire pour l'exportation des pays du Tiers-monde: réseau routier, ferroviaire, ports.

b) Autres questions

- Attitudes internationales à l'égard des sociétés canadiennes: sommes-nous de bons associés?
- Mondialisation des problèmes écologiques.

c) Questions

- Compagnies pharmaceutiques ont été accusées de dumping (parfois des produits non testés) dans les pays du Tiers-monde: l'industrie minière prête-t-elle le flanc à la critique lorsqu'elle fixe ses installations de traitement polluantes dans les pays où les normes de protection de l'environnement sont peu élevées?
- Libre-échange avec le Mexique: l'industrie minière peut-elle se permettre de demeurer au Canada?
- Le Canada profite-t-il suffisamment de sa compétence technique en exploitation minière et en fonderie sur la scène internationale?

4.4 Intervention gouvernementale

a) Questions d'intérêt national

- . Nature complexe de l'intervention gouvernementale: subventions et contributions; exonérations, déductions et crédits d'impôt; règles du jeu; programmes sociaux; normes professionnelles.
- . Changements fréquents des règles.
- . Confusion due à des formes et à des philosophies d'intervention différentes.
- . Ententes fédérales-provinciales de développement.
- . Réduction nécessaire de la paperasserie; rationalisation des mécanismes.
- . GATT, négociations commerciales, ALE.
- . Cartels, groupes de pression.

b) Autres questions

- . Gouvernements doivent être tenus responsables des dépenses financières à l'intention des groupes industriels.
- . Gouvernements doivent équilibrer les intérêts économiques et sociaux de la population.
- . Représailles pour des pratiques injustes à l'étranger.

c) Questions

- . Les gouvernements interviennent-ils lorsqu'ils prennent des mesures qui avantagent l'industrie minière ou lorsqu'ils favorisent un autre groupe seulement?
- . Comment les gouvernements peuvent-ils rendre compte des exonérations, des déductions et des crédits d'impôt accordés à l'industrie minière sans une paperasserie excessive?
- . Qui définit l'intérêt national en matière de mesures gouvernementales, d'allégements fiscaux et de programmes d'aide à l'industrie?

4.5 Niveau d'exploration et politique fiscale des gouvernements

a) Questions d'intérêt national

- . Politique des taux d'intérêt.
- . Cours du dollar canadien.
- . Rôle du cours des produits comme moteur de l'exploration.
- . Confusion due aux modifications à court terme des règles.
- . Confusion due aux modes d'action différents des gouvernements.
- . Déterminer les minéraux qui justifient une exploration plus approfondie. Qui dirige? Qui suit?
- . Contribution de la robotique et de la technologie de pointe pour réduire les frais d'exploration.

b) Autres questions

- . Encouragements fournis grâce aux ententes de développement minier.

c) Questions

- . En réponse aux questions des médias sur l'Accord de libre-échange, James Baker a déclaré que le Canada "ne serait pas injuste" s'il baissait le cours de son dollar pour se donner un avantage commercial. Existe-t-il une entente secrète pour conserver des taux d'intérêt élevés afin de nuire aux exportateurs comme l'industrie minière?
- . Une inflation plus élevée au Canada aiderait-elle l'industrie minière ou lui nuirait-elle?
- . Existe-t-il encore une économie canadienne ou est-elle simplement la portion canadienne de l'économie mondiale?
- . Les ententes de développement minier reflètent-elles les politiques fiscales des gouvernements ou sont-elles autre chose?

4.6 Rôle des prospecteurs et des petites sociétés d'exploration

a) Questions d'intérêt national

- . Augmentation du coût des activités.
- . Incidence des politiques fiscales et des cours.
- . Emploi croissant de la technologie de pointe pour appuyer les plus petites sociétés: moins chère et portative.
- . Baisse du coût des logiciels nécessaires pour interpréter les données.
- . Encouragements gouvernementaux, directs ou indirects.
- . Attirer et conserver les investisseurs.
- . Période séparant l'exploration et l'extraction.
- . Mise à jour constante des bases de données géoscientifiques.

b) Autres questions

- . S'assurer que les encouragements favorisent vraiment l'exploration.
- . Rôle des bases de données informatisées.

c) Questions

- . À la lumière de la hausse des dépenses qui doivent être engagées pour attirer les investisseurs et désaffecter les mines, les petites sociétés peuvent-elles être compétitives?
- . Les petites sociétés peuvent-elles jouer un rôle régional grâce aux ententes de développement minier?
- . Existe-t-il des mécanismes d'échange de données et de renseignements non confidentiels? Lequel serait le plus intéressant pour les petites sociétés?

5. L'IDÉE QUE LE PUBLIC SE FAIT DE L'INDUSTRIE MINÉRALE

5.1 Définir le problème

a) Questions d'intérêt national (source: sondage Angus Reid)

- . Incompréhension du degré de propriété canadienne.
- . On croit que l'industrie minière ne paie pas sa part d'impôts.
- . On croit que l'industrie pollue beaucoup.
- . On ne fait pas confiance aux cadres des sociétés minières; les cadres et les gouvernements sont les moins dignes de foi par opposition aux groupes écologistes.
- . On croit que l'industrie minière canadienne n'est pas meilleure que celle des autres pays en matière de productivité, de protection de l'environnement ou de sécurité.
- . Faible compréhension de la nature très technique des activités minières.

Tout ceci aboutit à ce qui suit :

- . Appui aux règlements plus sévères des gouvernements et à l'inspection des mines.

b) Autres questions

- . Aucune stratégie concertée pour modifier ce que pense la population.

c) Questions

- . Savons-nous que l'opinion du public est ce qui compte? Nous devons la modifier plutôt que s'attaquer à ceux qui la détiennent.
- . Avons-nous créé une base de données appropriée pour lancer une campagne semblable?
- . Existe-t-il un groupe semblable qui a réussi à modifier l'opinion et qui peut servir de modèle (ex. chasse aux phoques, trappeurs autochtones, industrie nucléaire)?

5.2 Le public

a) Questions d'intérêt national

- . 35 % des Canadiens appuient l'industrie, 45 % s'interrogent et 20 % sont contre.
- . C'est en C.-B. que les partisans de l'industrie (43 %) sont les plus forts au pays et au Québec qu'ils sont les moins nombreux (24 % et 25 % d'opposants).
- . Femmes dominant parmi les préoccupés et les opposants.
- . Partisans de l'industrie sont plus instruits et mieux nantis. Ils ont tendance à vivre dans les collectivités minières et croient que l'industrie a fait des progrès en santé, en sécurité et en protection de l'environnement.
- . Les préoccupés sont prêts à entendre les arguments de l'industrie. Les opposants le sont moins.

b) Autres questions

- . Grand public écoutera davantage les médias, les syndicats et les associations industrielles que les gouvernements ou les cadres des sociétés minières.
- . Habitants des collectivités minières écouteront d'abord les associations industrielles, puis les syndicats. Le gouvernement fédéral est le moins digne de foi.

c) Questions

- . L'attitude de l'industrie minière à l'égard des femmes contribuera-t-elle à les persuader d'appuyer l'industrie?
- . Doit-on penser à une campagne nationale ou provinciale-régionale selon les attitudes qui prévalent?
- . Doit-on profiter du fait que les habitants des collectivités minières nous appuient davantage ("nous connaître, c'est nous aimer")? Dans l'affirmative, comment?

5.3 Le message

a) Questions d'intérêt national

- . Canadiens se préoccupent beaucoup de l'environnement.
- . Nouvelle attitude de l'industrie à l'égard de l'environnement et de la santé et de la sécurité des travailleurs n'a pas été correctement communiquée au public.
- . Plusieurs de nos "porte-parole" habituels ne sont pas dignes de foi aux yeux du public; il est peu probable que ceux qui le sont soient nos porte-parole.
- . Canadiens ont une compréhension intrinsèque de la contribution de l'industrie minière à l'économie; ils savent que le Canada a de riches réserves minérales.
- . Forte participation canadienne, salaires élevés et technologie de pointe: voilà des caractéristiques qui doivent être signalées.

b) Autres questions

- . Statistiques sur la création d'emplois.
- . Récupération des métaux grâce au recyclage.

c) Questions

- . Comment inciter des personnes dignes de foi à transmettre nos messages positifs?
- . Pouvons-nous démontrer concrètement notre souci de l'environnement dans une campagne de sensibilisation du public (ex.: remise en état de terres à des fins de loisirs, nouveaux emplois de sous-produits habituellement délétères comme les essais de CANMET avec les cendres volantes)?
- . Quelle est la façon la plus efficace (coût, portée, crédibilité) de transmettre notre message au public clé?
- . Comment pouvons-nous être dignes de foi en matière d'environnement lorsque nous qualifions le Plan vert, les règlements relatifs aux déchets dangereux et la Loi sur le transport des marchandises dangereuses de "mesures inquiétantes"?

5.4 L'intolérance de la critique

a) Questions d'intérêt national

- . Critiques savent s'exprimer et ont accès aux médias.
- . Ère des orientations à un thème; critiques n'ont pas à rationaliser les positions parmi des question concurrentes comme ont à le faire les gouvernements ou l'industrie.
- . Questions peuvent se subdiviser en fonction des idéologies politiques, mais il faudra que tous les partis collaborent pour les régler (Libéraux sont les partisans, les Conservateurs les préoccupés et le NPD les opposants).
- . Canadiens ont toujours suivis un chef de file en cas de problème épineux, plutôt que l'inverse de crainte de susciter une réaction négative; on ne recueille pas de partisans à éviter les critiques.

b) Autres questions

- . Il faudra plus que des faits pour modifier l'opinion; les faits seront acceptés ou rejetés selon la valeur sous-jacente fixée par le public.
- . Critiques de l'industrie minière ont cette valeur de leur côté en soulevant les problèmes de l'environnement, de la santé et de la sécurité. Nous ne pouvons ignorer ce contexte.

c) Questions

- . Nos critiques sont-ils en fait "intransigeants" ou simplement le reflet des attitudes du public que nous n'aimons pas?
- . En les qualifiant d'intransigeants, favorisons-nous le dialogue nécessaire à la sensibilisation du public?
- . Avons-nous vraiment essayé d'entamer un dialogue avec eux?
- . En cette ère des positions correctes politiquement, laquelle de nos positions est valable?

5.5 Stratégies pour améliorer l'idée que se fait le public

a) Questions d'intérêt national

- . Nous avons de bonnes nouvelles.
- . Environnement continuera de dominer l'actualité au cours des prochaines années.
- . Industrie minière a besoin du gouvernement, mais les gouvernements ne sont pas dignes de foi.
- . Puisqu'il est peu probable que nous convaincrions nos critiques, nous devons renforcer nos appuis et convaincre les modérés en nous souciant de leurs préoccupations (environnement, santé, sécurité, emploi).
- . Nous avons besoin de solides programmes de surveillance, de suivi et d'évaluation de nos progrès.
- . Aptitudes nécessaires pour ne pas louvoyer.

b) Autres questions

- . Monde des affaires au Canada ne recueille pas autant d'appuis au sein du public pour diverses raisons: son appui à l'Accord de libre-échange, son mépris de l'environnement, l'ambiance de corruption due à la faillite de banques, les scandales de la bourse, etc. L'industrie minière ne peut y échapper.

c) Questions

- . À quelles valeurs fondamentales de la société canadienne l'industrie minière peut-elle s'intéresser afin d'acquérir une certaine crédibilité et de commencer à modifier les opinions?
- . Quel serait un délai raisonnable pour modifier les opinions? Avons-nous une stratégie à long terme?
- . L'industrie convient-elle des objectifs à long terme de n'importe quelle stratégie de communication?
- . Quels mécanismes de rétroaction sont envisagés pour tenir l'industrie au courant des messages, des publics et des activités clés afin que la stratégie et le plan de communication demeurent cohérents?

6. LES PRÉOCCUPATIONS GLOBALES DE L'INDUSTRIE MINÉRALE

6.1 Compétition et règlements environnementaux

a) Questions d'intérêt national

- . Stabilité politique est un facteur d'investissement à l'étranger.
- . Mondialisation des problèmes écologiques: rapport Brundtland, organismes internationaux de surveillance, sensibilisation accrue de la population en général.
- . Exportation de méthodes polluantes vers des pays où le gouvernement n'est pas démocratique.
- . Exportation de capitaux et de techniques plutôt que de les utiliser au pays.
- . Dégradation de l'environnement ne connaît pas de frontières: désertification, pluies acides, retombées de Tchernobyl, pollutions des Grands Lacs.
- . Canada doit concurrencer d'autres pays développés pour exploiter les ressources de pays en développement.

b) Autres questions

- . Croissance industrielle de pays du Tiers-monde donne lieu à une plus grande dépendance étrangère en raison de la demande en minéraux.

c) Questions

- . Les sociétés canadiennes sont-elles jugées comme de bons partenaires dans les pays étrangers?
- . Si les règlements environnementaux du Canada sont si sévères qu'ils font fuir les sociétés, pourquoi des sociétés comme Mitsubishi sont-elles très désireuses d'investir au Canada?
- . Est-ce vraiment le cadre réglementaire qui fait fuir les sociétés canadiennes? Ne serait-ce pas plutôt le fait que les gisements de beaucoup d'autres pays étrangers sont plus faciles à découvrir?

6.2 Commerce international des minéraux recyclés

a) Questions d'intérêt national

- . Convention de Genève interdisant le transport de produits "dangereux" nuit aux efforts de recyclage international.
- . Définition de "dangereux".
- . Surveillance et respect.
- . Signataires de la Convention. La respectent-ils?
- . Pays non signataires ont-ils des pratiques différentes?
- . Garanties nécessaires pour les processus de recyclage.
- . Comment s'assurer que les matériaux sont vraiment recyclés et non jetés simplement?

b) Autres questions

- . Contribution du recyclage international au développement "durable".
- . Sanctions contre les contrevenants n'ont eu aucun effet dans le cas de la pêche à la baleine, de la surpêche et du dumping de produits pharmaceutiques: auront-elles le même sort pour les minéraux "dangereux"?

c) Questions

- . Devrions-nous fixer des objectifs internationaux de recyclage versus l'exploitation de nouvelles mines?
- . Devrions-nous tenter de fabriquer des produits à partir des matériaux faciles à recycler?
- . Au fur et à mesure de la baisse du contenu métallique de beaucoup de nouveaux produits, le recyclage sera-t-il rentable dans 20 ou 30 ans?

6.3 Consommation et tendances commerciales

a) Questions d'intérêt national

- . Définition de produits "stratégiques": ils sont fonction des cours, de la demande ou de la politique?
- . Accumulation de produits stratégiques pour des raisons militaires ou politiques.
- . Dépendance de pays du Tiers-monde des exportations (ex.: Zambie dont les exportations représentent 50 % du PNB).
- . Gatt et autres négociations commerciales.
- . Cartels.
- . Consommation accrue des pays du Tiers-monde, ce qui laisse moins de ressources pour les pays développés.
- . Ressources et réserves: fiabilité des estimations dans les pays du Tiers-monde.

b) Autres questions

- . Scénario: épuisement des réserves.
- . Aide conditionnelle: forcer des pays à acheter nos surplus de produits comme la potasse.

c) Questions

- . Sommes-nous une société de consommation ou de conservation?
- . Les pays développés sont-ils moralement en position d'inciter des pays à conserver leurs ressources alors qu'ils tentent d'extirper l'indigence (compte tenu de notre consommation depuis la dernière guerre mondiale)?
- . En tant que société, planifions-nous suffisamment à long terme contre les pénuries de minéraux clés?
- . En se fondant sur le cas de l'étain, pouvons-nous conclure sans risque que les cartels ne réussissent pas à stabiliser les cours?

6.4 Emplois non traditionnels de matériaux à base de minéraux

a) Questions d'intérêt national

- . Échange de connaissances entre les industries, les provinces et les pays.
- . Canada a du retard en matière de recherche et de développement.
- . Importance d'attirer des jeunes vers des carrières en sciences de la Terre et en génie.
- . Nécessité de liens plus importants entre la politique officielle, les universités et l'industrie.
- . Récompenses pour l'innovation: élément de la scène canadienne?
- . "Valeur ajoutée" des emplois non traditionnels, élément du recyclage.

b) Autres questions

- . Économie de succursales du Canada.
- . "Développement durable" encourage la recherche d'applications en valeur ajoutée.

c) Questions

- . L'innovation est-elle l'apanage des petites ou des grandes entreprises?
- . La recherche de solutions de rechange fait-elle partie de notre exploitation des minéraux?
- . Avons-nous pris des mesures pour cerner les minéraux qui se prêtent le mieux à l'étude, à la recherche d'utilisations de rechange?

6.5 Tendances de l'emploi de produits minéraux

a) Questions d'intérêt national

- . Nouveaux produits spéciaux utilisés en céramique, pour les plastiques et pour les métaux des techniques de pointe.
- . Métaux en tant qu'éléments secondaires de nouveaux produits.
- . Risques et coûts associés à certains nouveaux produits.
- . Démographie canadienne (population vieillissante; ménages à deux revenus; schéma d'immigration; taux de formation familiale; femmes comme chef de famille monoparentale) comme facteur de la demande.
- . Démographie internationale: hausse de la longévité et baisse de la mortalité infantile; schémas d'immigration et des réfugiés; attentes.
- . Restructuration de l'économie en Europe de l'Est. Incidences?
- . Coût de l'énergie comme facteur de la demande.
- . Emploi de nouveaux produits pour les objets essentiels ou les biens de luxe.
- . Impôts et récession font chuter la demande dans des industries clés (ex.: automobile, habitation).

b) Autres questions

- . Demande accrue d'or de seconde catégorie et extraction de métaux communs de mines anciennes.

c) Questions

- . Il y aura toujours quelqu'un qui sera prêt à payer le prix: à qui les nouveaux produits profitent-ils?
- . La définition de "stratégique" évolue-t-elle compte tenu des bouleversements géopolitiques? Devrait-elle?
- . Traitement accru au Canada: continuerons-nous d'en exporter sous forme de charbon et de le récupérer sous forme de voitures?

RAPPORTS

ATELIER 1 : LES MINES ET L'ENVIRONNEMENT

1. Contexte réglementaire

a. Observations

- Il faut uniformiser les règlements sur l'environnement.
- Le PEEE engendre une redondance des mécanismes, une incertitude constitutionnelle et des obstacles inutiles au développement.
- Retards dus à l'application des règlements entraînent des coûts supplémentaires.

b. Recommandations

- Deux ordres de gouvernement doivent coopérer pour uniformiser les règlements afin qu'il n'y ait un seul mécanisme d'examen.
- Gouvernement fédéral doit reconnaître la responsabilité des provinces à exploiter leurs propres ressources.
- Groupes qui s'intéressent au projet de loi C-13 doivent présenter leurs préoccupations au comité parlementaire ainsi que lors d'ateliers qui se dérouleront cet automne.

2. Risques

a. Observations

- Politiques environnementales des entreprises sont importantes pour démontrer une assiduité qui convient. Elles doivent être prises au sérieux car elles répondent à des attentes minimales. Participation des employés.
- Diverses méthodes sont employées au pays. Le fait de blâmer les propriétaires actuels pour les erreurs du passé nuit à la société en décourageant les travaux à proximité des anciennes mines prometteuses.

b. Recommandations

- Il faut un mode d'action uniforme et pratique pour régler les problèmes environnementaux antérieurs.
- Groupe d'étude nécessaire.
- Créer des encouragements pour favoriser l'assainissement des anciennes mines.
- Il doit y avoir un processus pratique pour "recycler" les anciennes mines en éliminant les risques et en favorisant les nouveaux travaux.

3. Aménagement du territoire

a. Observations

- De plus en plus difficile d'avoir accès aux terrains au Canada. Projet NATLUS est un moyen utile de recueillir et d'afficher des données sur l'aménagement du territoire pour aider les gouvernements à élaborer des orientations et les sociétés minières à planifier l'exploration.

b. Recommandations

- Comment les renseignements de NATLUS sont-ils interprétés? Possibilité d'erreurs. Il faut un mécanisme de coordination entre les provinces, les territoires et le CIMAT pour s'assurer que les données sont présentées correctement.
- Il faut une stratégie de communication pour le NATLUS afin de s'assurer que les données sont utilisées correctement et bien comprises. Le message approprié doit être présenté.

4. Autochtones

a. Observations

- Consultation et collaboration industrie-autochtones dans la foulée du règlement des revendications territoriales.
- Valeurs traditionnelles de l'aménagement du territoire ne sont pas correctement exprimées dans les examens actuels.

b. Recommandations

- Évaluations et les normes d'aménagement du territoire doivent être sensibles à l'utilisation traditionnelle des terres et aux valeurs culturelles des autochtones et d'autres habitants, et ne doivent pas simplement refléter les critères techniques liés à la protection de l'environnement.

LES RESSOURCES HUMAINES ET L'INDUSTRIE MINÉRALE : ATELIER 2

Dans le domaine des ressources humaines, l'industrie minière doit relever un certain nombre de défis afin de demeurer compétitive. Le groupe a discuté d'un certain nombre de facteurs indépendants et connexes qui contribuent à recruter et à conserver des gens.

1. Les mines ont une durée de vie limitée. Les employés devront peut-être travailler à plusieurs endroits au cours de leur carrière.

Cela signifie dans certains cas que les employés qui possèdent une maison dans une région où une mine doit être fermée perdent cet investissement.

Certains membres du groupe ont proposé que les sociétés et les gouvernements soient prêts à prendre à leur charge les obligations financières qui en découlent. Ils ont également suggéré que les sociétés préparent leur main-d'oeuvre à l'éventualité d'une fermeture en leur fournissant régulièrement des rapports d'activité.

2. La nature des emplois au sein de l'industrie minière évolue en raison de la réduction du nombre d'emplois et de la hausse du nombre d'employés très compétents. Cette situation va à l'encontre du taux d'instruction relativement faible de la main-d'oeuvre actuelle.

On a proposé que les gouvernements, les syndicats et les sociétés consacrent des fonds en priorité à la reconversion de la main-d'oeuvre actuelle.

Une bonne part de la main-d'oeuvre actuelle vieillit et de nouveaux travailleurs devront être recrutés. La formation que reçoivent les jeunes dans nos écoles ne les préparent pas à des carrières dans l'industrie minière. Cette situation a donné lieu à une abondance ou à une pénurie de diplômés dans un certain nombre de disciplines techniques.

3. L'idée négative que possède le public à l'égard des emplois dans le secteur minier nuit à l'aptitude de l'industrie à recruter de nouveaux travailleurs.

Certains membres du groupe indiquent que les professeurs sont un facteur important du recrutement. Ils proposent de fournir des manuels scolaires sur l'industrie minière.

4. Les maladies industrielles sont une source de préoccupation pour les employés et les sociétés. On a proposé que les modes d'indemnisation actuels engendrent des conflits entre les travailleurs et les sociétés et ne contribuent pas à régler les problèmes.

Bon nombre de membres ont souligné que les travailleurs doivent être conscients des risques en milieu de travail. Ils ont proposé que les gouvernements et l'industrie cernent mieux ces problèmes et que le personnel médical soit mieux formé pour diagnostiquer les maladies industrielles.

5. L'industrie emploie relativement peu d'autochtones. Un document du GTI sur la participation des autochtones à l'industrie minérale donne un certain nombre d'exemples, brosse un tableau démographique des autochtones et présente les résultats d'un questionnaire.

L'un des facteurs clés de la faible participation des autochtones est leur faible instruction. Il faut absolument des programmes de formation. Le groupe a laissé entendre que les collectivités autochtones ont chacune des besoins différents. Les sociétés peuvent aider les autochtones à s'adapter à l'industrie en leur fournissant des horaires de travail flexibles qui tiennent compte des modes de vie traditionnels.

Les syndicats ont récemment contribué à accroître la participation des autochtones au sein de l'industrie en tenant compte de leurs particularités culturelles.

6. L'industrie recrute très peu de femmes. Il faut déployer plus d'efforts pour les attirer vers des métiers non traditionnels.

En somme, le groupe a examiné un certain nombre de façons de recruter un plus grand nombre de travailleurs. Parmi les solutions avancées, on compte : atténuer les répercussions de la fermeture de mines, reconvertir la main-d'oeuvre actuelle, améliorer la perception du public à l'égard de l'industrie, s'occuper des maladies industrielles, et accroître le nombre d'autochtones et de femmes au sein de l'industrie.

Atelier 3

LES PRÉOCCUPATIONS FINANCIÈRES DE L'INDUSTRIE MINÉRALE

3.1 Financement de la remise en état (Question principale)

Paielements seront déductibles et les recettes annuelles du fonds sont exonérées d'impôt durant leur accumulation. Sommes excédentaires seront imposables.

3.2 Encouragements à l'exploration minière (Aucune solution miracle)

A. Améliorer les encouragements :

- i) en raison de l'absence de bons objectifs d'exploration au Canada, appuyer les encouragements gouvernementaux pour la véritable exploration (et non l'exploration anticipée);
- ii) règlements appropriés relatifs aux garanties;
- iii) encouragements fiscaux plutôt que des subventions;
- iv) réduire les impôts sur les gains en capital.

B. Peut-on améliorer le climat d'investissement sans les encouragements?

- i) en abaissant le cours "artificiel" du dollar canadien;
- ii) accès aux terrains;
- iii) obstacles environnementaux;
- iv) efforts déployés par les pays étrangers;
- v) recherche et développement : CCIMT.

3.3 Impôts sur les mines (Traiter sans ménagement)

- Difficile d'obtenir un système entièrement uniforme. Évaluateurs se réunissent pourtant chaque année.
- Niveau d'impôt n'est pas la principale préoccupation de l'industrie.

3.4 Attirer les investisseurs (Important à régler)

- Industrie et les provinces souhaitent retourner à un mécanisme de consultation, notamment pour rencontrer le ministre des Finances.
- Taux d'intérêt et taux de change du dollar plus bas.
- Investissement de fonds au large des côtes.
- Ventes d'or du gouvernement.

ATELIER 4

LES DÉFIS DE L'EXPLORATION MINIÈRE

L'exploration est l'élément vital de l'industrie minière. Préoccupation générale en ce qui concerne l'appauvrissement des réserves et le manque de travaux d'exploration. Il faudra accentuer l'exploration pour répondre à la demande ultérieure en minéraux.

Exploration au pays ou à l'étranger

- Plus grand nombre de possibilités immédiates à l'étranger.
- Politiques fiscale et d'accès aux terrains moins intéressantes au Canada.
- Malgré les possibilités offertes dans les pays du Tiers-monde, il faut mettre l'accent sur les réserves importantes au Canada.

Exploration et terres aliénées

- Risque "politique" associé à des désignations "limitatives"
 - lorsqu'un gisement est découvert, peut-il être exploité?
- Difficile d'évaluer avant la désignation - l'évaluation n'est jamais parachevée!
- Est-ce sensé d'adopter une stratégie d'emplois multiples et d'accepter les restrictions opérationnelles dans certaines zones sensibles?
- Règlement retardé des revendications territoriales pose un problème. La plupart des délégués estiment cependant que l'industrie pourra s'entendre avec les autochtones.

L'essentiel :

- gestion intégrée des ressources
- règlement des revendications territoriales

Climat fiscal

Le climat fiscal n'est pas intéressant. Les encouragements à l'exploration doivent être fondés sur des principes plus solides.

Quelques idées :

- Appui aux EDM fédérales-provinciales visant à mettre à jour les bases de données géoscientifiques.
- Encourager les programmes d'aide aux prospecteurs.
- Fonder les politiques fiscale et monétaire sur les besoins de l'industrie canadienne des ressources.
- Régime fiscal doit reconnaître les activités à risques élevés comme l'exploitation minière.

Règlements

Encourager un véritable règlement à thème précis dirigé par les ministres des mines. Supprimer la redondance fédérale-provinciale.

BREF RAPPORT SUR L'ATELIER 5

L'IDÉE QUE LE PUBLIC SE FAIT DE L'INDUSTRIE MINÉRALE

HONORABLE MAURICE BYBLOW - Coprésident
ISABELLE MULLIGAN - Coprésidente
PAUL DEAN - Secrétaire

- On reconnaît que le public a une idée très négative de l'industrie minière à l'heure actuelle.
- Beaucoup de raisons sont à l'origine de ce phénomène: la première d'entre elles est l'héritage que l'industrie minière a laissé d'une époque où l'environnement, la santé et la sécurité des travailleurs et les collectivités minières étaient le dernier de ses soucis. En outre, peu de sociétés minières adoptent les attitudes et les pratiques du passé mais le public en général ne fait aucune distinction entre les sociétés.
- Au Canada, l'industrie minière est toujours considérée comme un grand pollueur. À titre d'exemple, on pointe toujours du doigt la cheminée de l'Inco comme l'un des principaux responsables des précipitations acides.
- D'aucuns croient que le Canada n'a pas besoin d'une industrie minière et les gens sont peu conscients de sa contribution à l'économie canadienne ou de l'utilisation des minéraux et des métaux dans la vie courante. On reconnaît très peu les améliorations qui ont été apportées au cours des dernières années en matière d'environnement, de santé, de sécurité et de technologie. Les bonnes nouvelles ne sont pas communiquées au grand public ou le message n'est pas précis.
- Il est urgent de prendre des mesures immédiates et d'adopter une stratégie à long terme pour éduquer le public sur l'importance de l'industrie minière et ses produits.
- Les publics-cibles importants sont : le grand public, les médias, les enseignants et, notamment, les travailleurs, les collectivités minières et les organisations communautaires.
- L'industrie doit affronter le problème de front et adopter une attitude moins défensive lorsqu'elle rencontre les médias. Les erreurs du passé doivent être reconnues mais il faut faire connaître la réalité actuelle. Nous devons modifier l'idée de la population et non le public même.
- L'industrie doit fixer des normes et les respecter si elle désire acquérir une crédibilité. Sinon, il ne doit y avoir aucune campagne de relations publiques. Celle-ci doit porter sur de véritables réalisations.

- L'Association minière du Canada, certaines organisations industrielles provinciales et territoriales et des gouvernements provinciaux et territoriaux prennent des mesures à ce sujet. Dans le cadre des ententes sur le développement minéral, la Nouvelle-Écosse et Énergie, Mines et Ressources Canada présentent un bon modèle d'action pour les gouvernements provinciaux et territoriaux.
- Les programmes éducatifs sont nécessaires pour atteindre les objectifs à long terme, mais il faut que l'industrie prenne des mesures immédiates. L'AMC a élaboré un programme et une stratégie pour s'attaquer au problème.
- Il faut un organisme national de coordination pour échanger des idées, des renseignements et des stratégies entre les associations et les gouvernements.
- Les membres de l'atelier et les coprésidents recommandent que les ministres créent un sous-comité de hauts fonctionnaires chargé de définir, de concert avec les associations industrielles, diverses façons d'améliorer la réputation de l'industrie minière. Le sous-comité présentera l'an prochain un rapport aux ministres.

Atelier 6

Les préoccupations globales de l'industrie minière

On avait décidé au départ que les questions désignées devaient être réparties entre les catégories suivantes :

1. mondialisation de l'économie internationale;
2. offre et demande;
3. investissement;
4. exploitation minière et l'environnement.

1. La mondialisation et l'économie internationale

- Les économies ne sont plus nationales. On se dirige vers un réseau économique mondial.
- L'exploitation minière, comme les autres industries, est de plus en plus dirigée par des multinationales.
- En conséquence, les facteurs suivants influent beaucoup sur l'essor de l'industrie :
 - cadre réglementaire (notamment pour l'environnement);
 - apport de renseignements (disponibilité de données géologiques, accès aux données mondiales);
 - stabilité politique;
 - période qui précède l'exploitation d'un gisement;
 - accès à des capitaux.
- Si le nouvel ordre mondial engendre une stabilité politique accrue, la compétition sera plus féroce.
- L'Europe de l'Est n'atteindra pas une stabilité politique à court terme, mais elle jouera plus tard un rôle mondial important.

2. L'offre et la demande

- La pénurie de minéraux, notamment de métaux, ne sera pas un problème à court terme. On estime que la pénurie est fonction des cours.
- En fait, la plupart des cours ont chuté durant les dernières années en raison :
 - du recyclage;
 - de la substitution;
 - des nouvelles techniques.
- Il existe toutefois des facteurs inconnus qui peuvent influencer sur les cours et dont sur l'offre et la demande de minéraux raffinés :
 - le coût de l'énergie nécessaire;
 - la croissance de la population mondiale.

- L'incidence des bouleversements en Europe de l'Est est difficile à prédire :
 - le besoin de devises fortes pourrait accroître l'offre de minéraux;
 - la reconstruction de l'infrastructure augmentera la demande;
 - une incidence peut-être positive.
- La fin de la guerre froide pourrait accroître l'offre de minéraux, notamment de métaux.
- Le traitement comportera de plus en plus le recyclage (50 % de l'acier provient maintenant de la ferraille), ce qui réduira la demande en minerai. Cependant, il faut se pencher sur le problème important du transport des déchets dangereux.

3. L'investissement

- L'investissement pour l'exploitation aura tendance à apparaître là où les gisements sont de bonne qualité, les exigences législatives raisonnables et les gouvernements stables.
- Il existe plusieurs gisements importants dont les frais d'exploitation sont grandement inférieurs à ceux au Canada. Cet avantage compensera peut-être l'instabilité politique.
- Les codes d'investissement de certains pays attirent les investisseurs étrangers alors que les codes canadiens représentent de plus en plus des obstacles.
- Nous avons besoin de plus de données pour mieux comprendre les rouages de l'investissement minier au monde.
- D'un point de vue du développement économique, nous devons rechercher une VALEUR AJOUTÉE compétitive. Le secteur primaire du Canada est mieux placé que le secteur secondaire pour y arriver.
- L'endettement croissant des gouvernements et le coût du service de la dette rend le Canada moins compétitif.
- Les risques perpétuels de l'industrie minière influent beaucoup sur les investissements.

4. L'environnement

- Nous devons établir un juste équilibre entre le développement économique et la protection de l'environnement.
- Il existe des occasions d'être compétitifs et de protéger l'environnement.
- Le mouvement écologiste pose tout un problème à l'industrie. Le public a davantage confiance en les groupes écologistes et en les universitaires qu'en les gouvernements ou en l'industrie. Comment modifier cette situation?

48TH ANNUAL MINES MINISTERS' CONFERENCE

48E CONFÉRENCE ANNUELLE DES MINISTRES DES MINES

HALIFAX, Nova Scotia
September 22-24, 1991HALIFAX (Nouvelle-Écosse)
Du 22 au 24 septembre 1991

LIST OF PUBLIC DOCUMENTS

LISTE DES DOCUMENTS PUBLICS

DOCUMENT NO. NUMÉRO DU DOCUMENT	SOURCE ORIGINE	TITLE TITRE
830-399/001		Schedule of Events - Final Agenda Programme - Ordre du jour définitif
830-399/004	Chamber of Mineral Resources of Nova Scotia	Brief Presented to Mines Ministers Conference Mémoire présenté à la conférence des ministres des mines
830-399/005	The Coal Association of Canada L'Associa- tion charbonnière canadienne	Canada's Coal Industry - It's Importance to the Nation L'industrie charbonnière canadienne - Son importance pour le pays
830-399/006	The Prospectors and Developers Association of Canada L'Associa- tion de l'industrie minière pour le Canada	The Importance of the Mineral Industry to Canada L'importance de l'industrie minière pour le Canada
830-399/007	The Mining Association of Canada L'Associa- tion minière du Canada	Managing Canada's Mineral Endowment La gestion des richesses minières du Canada

DOCUMENT NO. NUMÉRO DU DOCUMENT	SOURCE ORIGINE	TITLE TITRE
830-399/008	The Mining Association of Canada	Financial Assurance for Mine Reclamation, Decommissioning and Post-Closure Obligations
<i>file 2009 only</i> 830-399/009	L'Association minière du Canada	Garantie financière pour la récupération des sites miniers, la mise hors service des mines et les obligations après leur fermeture
	Federal	Status Report on the Mine Environment Neutral Drainage (MEND) Program
	Fédéral	Rapport d'étape sur le programme de Neutralisation des Eaux de Drainage dans l'Environnement Minier (NEDEM)
830-399/010	Federal	Report on Native Participation in Mining: Phase II - It can be done
	Fédéral	Rapport sur la participation des autochtones à l'exploitation minière
830-399/011	Federal	Report on the Cleanup of Abandoned Tailings Through Reprocessing Operations
	Fédéral	Rapport sur les activités de retraitement des résidus abandonnés
830-399/012	Federal	Report on Mineral Exploration Expenditures and Flow-through Share Funding
	Fédéral	Rapport sur les dépenses d'exploration minière et le financement par actions accréditives
830-399/013	Canadian Geoscience Council Conseil géoscientifique canadien	Brief for the 48th Annual Mines Ministers' Conference Condensé soumis pour la 48e Conférence des ministres des Mines
830-399/014	Association of Chief Inspectors of Mines	Annual Report - 1990
	Association des Inspecteurs en chef des Mines	Rapport annuel - 1990

DOCUMENT NO. NUMÉRO DU DOCUMENT	SOURCE ORIGINE	TITLE TITRE
830-399/015	Keith C. Hendrick, Chairman, Noranda Minerals Inc. Keith C. Hendrick, Président, Minéraux Noranda Inc.	"The Importance of the Mineral Industry to Canada" "L'importance de l'industrie minière pour le Canada"
830-399/016	John MacDougall	Notes for an Address by John MacDougall on Behalf of the Honourable Jake Epp, Minister of Energy, Mines and Resources Canada Notes pour une allocution de John MacDougall au nom de l'honorable Jake Epp, Ministre de l'Énergie, des Mines et des Ressources du Canada
830-399/017	Leo W. Gerard	Sustainable Prosperity for the Mining Industry La prospérité durable pour l'industrie minière
830-399/018		Workshop Topics and Reports Thèmes et rapports des ateliers
830-399/020	Secretariat Secrétariat	List of Public Documents Liste des documents publics
830/399/021	CICS Nova Scotia	Final Report

DOCUMENT: 830-399/021

48TH ANNUAL MINES MINISTERS' CONFERENCE

Final Report

Canadian Intergovernmental Conference Secretariat

Nova Scotia

**HALIFAX, Nova Scotia
September 22-24, 1991**

48th ANNUAL MINES MINISTERS' CONFERENCE
HALIFAX, NOVA SCOTIA, SEPTEMBER 23-24, 1992

FINAL REPORT

Prepared by the
Canadian Intergovernmental Conference Secretariat
and the
Nova Scotia Department of Natural Resources

August 1992

LIST OF MATERIALS

1. Interim Report
2. Schedule of Events, 48th Mines Ministers' Conference
3. Verbatim accounts of Plenary Sessions 1, 2, and 3
4. Summary of Proceedings, Plenary Session 3
5. Annual Report of the Association of Chief Inspectors of Mines
6. Copies of Addresses by Key Note on Monday Morning
7. List of Delegates

1. **Interim Report**
2. **Schedule of Events**

INTERIM REPORT

48th MINES MINISTERS' CONFERENCE

Halifax, Nova Scotia

Hosted by the

Nova Scotia Department of Natural Resources

SUMMARY OF THE CONFERENCE

Two hundred and one delegates attended the 48th Mines Ministers' Conference at the Halifax Hilton Hotel from September 22 to 25, 1991. This conference represented a change from the traditional format to a new interactive format that encouraged all delegates to participate.

The Halifax Mines Minister's Conference represented a number of "firsts:"

1. consulting mining associations nationally and locally about the scope, theme and content of the Conference;
2. encouraging native peoples to participate in the conference through the National Aboriginal Minerals Group;
3. increasing the emphasis on dialogue between the ministers of mines, government officials, minerals industry representatives and associations, labour, and native groups;
4. using workshops to facilitate discussions and exchanges of ideas;
5. inviting the Coal Association of Canada to present a brief; and
6. expanding the conference to two full days of sessions.

An initial budget forecasted expenditures of \$49,443. The actual expenditures were \$49,405. Revenue from delegates' fees was \$50,326.

REVIEW OF THE CONFERENCE

The forty-eighth Ministers' Conference was held in Halifax from September 22 to 25. These annual meetings facilitate intergovernmental discussion and action regarding mineral policy and industry concerns common to the various mining jurisdictions across Canada. They also provide a forum for the mineral industry. The assembly included meetings of the various provincial/territorial ministers and delegates, plenary sessions, workshops, briefs by mineral industry associations, and tours of Nova Scotia's mining sites. During the conference seven mineral related groups met to discuss various issues.

The theme of the conference, "The Importance of the Mineral Industry to Canada," was addressed in keynote talks by representatives of government, labour and the mineral industry.

Keynote Talks

The honourable John MacDougall, M.P., parliamentary assistant to the honourable Jake Epp, the federal

minister of Energy, Mines and Resources, summarized Ottawa's initiatives regarding land access and the environment. Leo Gerard, national director of the United Steelworkers of America, presented his union's goal of sustainable prosperity. He emphasized that aiming for sustainable prosperity requires the cooperation of government, labour and industry. Keith Hendrick, Chairman of Noranda Minerals Inc. and Chairman of the Mining Association of Canada, represented the mineral industry. He outlined global and domestic strategies required to enhance the industry's viability.

Workshops

A highly successful innovation at this year's conference was the introduction of six workshops to address industry concerns and issues. Representatives from government, mining associations, mining companies and native groups shared ideas and concerns regarding current issues such as the environment.

Workshops addressed such common issues as land use and access, fiscal and monetary policies, the environment, and the harmonization of regulatory legislation. A human resources workshop discussed how the industry could attract and retain more people, including minorities. The public perception workshop recommended that a subcommittee be established to study ways to combat the current negative attitude towards the mineral industry.

Industry Briefs

Industry association briefs were submitted by the Chamber of Mineral Resources of Nova Scotia, the Coal Association of Canada, the Prospectors and Developers Association of Canada, and the Mining Association of Canada. All briefs emphasized that a strong mineral industry was vital to Canada's economic future.

The Chamber of Mineral Resources of Nova Scotia stressed the need for coordinated public relations activities between government and the mineral industry. The Coal Association outlined the importance of coal to the nation and the implications of regulatory initiatives on the industry. The Prospectors and Developers Association of Canada presented a recommendation for a review of financial incentives and fiscal and monetary policies. The Mining Association of Canada recommended establishing joint government/industry task forces and committees on environmental issues. The Association also suggested cooperation with government on tackling issues that are challenging the mineral industry as well as cooperation on regional economic mineral development.

Industry Tours

Delegates had a chance to tour parts of the Nova Scotia mineral industry during the conference. Tours included trips to the Rio Algom tin mine at East Kemptville, the Westray coal mine near Stellarton, and the construction materials operations of National Gypsum Canada Limited at East Milford and L.E. Shaw Limited at Lantz.

25 March 1992

48th MINES MINISTERS' CONFERENCE

Halifax Hilton
Halifax, Nova Scotia

Hosted by the
NOVA SCOTIA DEPARTMENT OF NATURAL RESOURCES
September 22 to 25, 1991

SCHEDULE OF EVENTS

SUNDAY, 22 September 1991

09:00 to 17:00	Provincial Geologists' Committee (closed meeting)	Board Room
11:00 to 16:30	Public Relations Committee, Mining Association of Canada	Commonwealth B
13:30 to 16:00	Intergovernmental Working Group (Closed Meeting)	Lunenburg Room
13:30 to 16:30	Joint Mining Associations	Northumberland Room
16:30 to 17:30	Mining Association of Canada Executive Meeting	Northumberland Room
15:00 to 17:00	REGISTRATION	Reception Area
18:00 to 20:00	WELCOMING RECEPTION Light refreshments. Bus shuttle between the Hotel and the Maritime Museum of the Atlantic beginning at 17:30.	Maritime Museum of the Atlantic

48th Mines Ministers' Conference

MONDAY, 23 September 1991

07:00 to 09:00	BREAKFAST for Delegates	Commonwealth B
07:30 to 09:00	BREAKFAST for Ministers	Board Room
07:30 to 09:00	BREAKFAST for Deputy Ministers	Harbour Suite A
08:30 to 14:00	REGISTRATION	Reception Area
09:00 to 10:00	Intergovernmental Working Group (Closed Meeting)	Lunenburg
10:00 to 10:30	NUTRITION BREAK	Reception Area
10:30 to 12:00	PLENARY SESSION 1 (Open Session) Session Open to All Delegates and the Media (print, TV, radio) Theme: <i>The Importance of the Mineral Industry to Canada</i> Key Note Talks on the Theme by: Honourable Jake Epp, Minister of Energy, Mines and Resources Canada Mr. Leo Gerard, National Director, United Steelworkers of America Mr. Keith Hendrick, Chairman, Noranda Minerals Inc.	Commonwealth A
12:00 to 14:00	LUNCH	Atlantic Ballroom
14:00 to 17:00	WORKSHOPS (Closed to the media) 1. Mining and the Environment 2. Human Resources and the Mineral Industry 3. Financial Concerns of the Mineral Industry 4. Challenges in Mineral Exploration 5. Public Perception of the Mineral Industry 6. Global Concerns for the Mineral Industry	Commonwealth B Harbour B Northumberland Cornwallis Harbour A Lunenburg
Workshops will have 2.5 hours for deliberations and discussions. The format will vary but may include short talks by resource people, briefs and discussions focusing on the issues. Each workshop will have co-chairpersons, four to seven resource people and a secretary.		
18:00 to 20:00	HARBOUR CRUISE Light refreshments. Bus between the Hotel and Cable Wharf beginning	Harbour Queen I at 17:30.

45th Mines Ministers' Conference

TUESDAY, 24 September 1991

07:00 to 09:00	BREAKFAST for Delegates	Commonwealth B
07:30 to 09:00	BREAKFAST for Ministers and Deputy Ministers	Harbour Suite A
08:30 to 10:45	REGISTRATION	Reception Area
09:00 to 10:15	PLENARY SESSION 2 (Open Session) Session Open to all Delegates and the Media (print, TV, radio) Presentation of Workshop Reports; Open Discussion by Delegates.	Commonwealth A
10:15 to 10:45	NUTRITION BREAK	Reception Area
10:45 to 12:30	PLENARY SESSION 2 (Open Session) Briefs from Industry Associations: 1. Chamber of Mineral Resources of Nova Scotia 2. Coal Association of Canada 3. Prospectors and Developers Association of Canada 4. Mining Association of Canada 5. Other Briefs for reference (See delegates' binder.)	Commonwealth A
12:30 to 14:00	LUNCH	Atlantic Ballroom
14:00 to 15:00	Individual Meetings: Ministers and provincial/territorial delegates	
14:00 to 17:00	MILUC Meeting (Ralph Cheeseman)	Northumberland Room
15:00 to 15:15	NUTRITION BREAK	
15:00 to 17:00	Chamber of Mineral Resources of Nova Scotia Board Meeting	Commonwealth B
15:15 to 16:30	PLENARY SESSION 3 (Closed Session) (For Ministers and their staffs) 1. Review and summary of business from the Manitoba Conference. 2. Issues from Workshops and Industry Association Briefs. 3. Report on Mineral Exploration Expenditures and Flow Through Share Funding 4. Mine Reclamation. 5. Tailings Reprocessing. 6. Native Involvement in Mining.	Atlantic Ballroom
17:00 to 17:30	PRESS CONFERENCE	Atlantic Ballroom
18:00 to 21:30	RECEPTION and LOBSTER BASH Delegates from Mines Ministers' Conference and Council of Energy Ministers Meeting	Commonwealth A

48th Mines Ministers' Conference

WEDNESDAY, 25 September 1991

08:30 to 17:00

TOURS OF NOVA SCOTIA'S MINERAL INDUSTRY
Vans and bus will leave front of Halifax Hilton at 08:00.

1. Rio Algom Ltd., Sn-Cu-Zn-Ag mine, East Kemptville
 2. National Gypsum Canada Ltd., gypsum operation, East Milford and L.E. Shaw Ltd., clay products, Lantz
 3. Curragh Resources Corporation, Westray Coal mine, Stellarton
-

SPOUSAL ACTIVITY

MONDAY, 23 September 1991

10:30 to 16:30

Tour of Nova Scotia's South Shore; Peggys Cove, Mahone Bay and Lunenburg: sightseeing, browsing, and shopping.

Bus leaves from the front of the Halifax Hilton at 10:30. Return about 16:30.

DURING THE CONFERENCE, 22 TO 25 September 1991

COMMON USE ROOMS

Daily

Registration

Reception Area near Atlantic Ballroom

08:30 to 17:00

Press Room

Fundy Room

Phone: (902) 426-8604

Hotel Phone (902) 423-7231, Extension 2627

08:30 to 17:00

Nova Scotia Department of Natural Resources Office

Bedford Room

Hotel Phone: (902) 423-7231, Extension 2654

08:30 to 17:00

Conference Secretariat Office (CICS)

Maritime Room

Phone: (902) 426-8604

FAX: (902) 426-1828

Hotel Phone: (902) 423-7231, Extension 2653

**48TH ANNUAL MINES MINISTERS' CONFERENCE
HALIFAX - SEPTEMBER 23-24, 1991**

Co-Chairpersons: The Honourable Chuck MacNeil
 Minister of Natural Resources
 Nova Scotia

 The Honourable John MacDougall
 Member of Parliament
 Canada

MONDAY MORNING, SEPTEMBER 23, 1992

PLENARY SESSION 1

The Conference commenced with opening remarks by the Honourable Chuck MacNeil. The head table was introduced, the Honourable John MacDougall, M.P., Mr. Leo Gerard, National Director, United Steelworkers of America and Mr. Keith Hendrick, Chairman, Noranda Minerals Inc.

OPENING REMARKS BY THE HONOURABLE CHUCK MACNEIL

HONOURABLE CHUCK MacNEIL: Good morning, ladies and gentlemen. As a Minister for the host department I am most pleased and honoured to extend warm welcome to you, the delegates, and your spouses from across the country. I bring greetings and best wishes on behalf of Premier Cameron, the Government of Nova Scotia, and the people of Nova Scotia. We hope that your visit to our province will be pleasant and memorable.

I am especially proud to welcome you on behalf of the staff of our new department, the Department of Natural Resources for Nova Scotia. As some of you may know, we have recently merged our two departments that are hosting this conference and this seems like a very appropriate way for us to have our debut as the Department of Natural Resources.

I offer personal thanks to the individuals within our department, formerly Mines and Energy, who have done such excellent work in organizing both the conference and the Energy Ministers' Council meeting which will follow this week. Your dedication and efforts are appreciated and I thank you on behalf of all the delegates.

We are also indebted to several industry associations for their advice and assistance in organizing this conference. These include the Prospectors and Developers Association of Canada, the Mining Association of Canada, the Coal Association of Canada and the Chamber of Mineral Resources of Nova Scotia. We are especially grateful for their work in preparing the briefs which will be presented over the next two days.

We are very encouraged at a large number of delegates from all provinces and territories, and especially those attending for the first time. Representatives of several native organizations have joined us for the conference and to them we extend a special welcome.

We have developed a new format for the conference this year. The conference itself has been expanded to two days and has introduced a workshop session to study and discuss issues of importance to the mineral industry. We have also opened up the conference, largely, to the media, providing them the opportunity to report on the addresses of our keynote speakers directly. As you know, the theme of the conference is "The Importance of the Mineral Industry in Canada." In today's rapidly changing world it is a very appropriate theme and I will look forward to the discussions.

Mining is very important to Nova Scotia, its economy and

its people. The annual value of the mineral production is about \$500,000,000.00, and that is quite significant to a small province like Nova Scotia. Mining provides direct employment to over 5,000 people. Nova Scotia produces more than 20 metals, minerals and commodities. On a province-by-province basis we are the first in the production of tin and gypsum. Industrial minerals dominate our mineral production, followed by fuels and metals.

Our all-weather deep water ports provide a definite advantage in the export of high tonnage, low unit value minerals such as gypsum and aggregates. And as many of you are no doubt aware, we will shortly be producing petroleum from the Cohasset/Penuke (phonetic) field near Sable Island off Nova Scotia.

This is but a brief sketch of the mineral industry situation in Nova Scotia but I hope it provides an appropriate backdrop for the theme of our conference and the insight provided today by our keynote speakers. I would like at this time to recognize those sitting at the head table, and they will be formally introduced later as each speaks. On my immediate right John MacDougall, MP, Mr. Leo Gerard and Mr. Keith Hendrick.

**Theme: The Importance of the Mineral Industry to Canada / Keynote Speeches
by:**

1. **The Honourable John MacDougall, M.P.**
 Parliamentary Secretary
 "Notes for an address by John MacDougall on Behalf of the
 Honourable Jake Epp, Minister of Energy, Mines and
 Resources Canada"
 doc #830-399/016

2. **Mr. Leo Gerard**
 National Director, United Steelworkers of America
 "Sustainable Prosperity for the Mining Industry"
 doc #830-399/017

3. **Mr. Keith Hendrick**
 Chairman, Noranda Minerals Inc.
 "The Importance of the Mineral Industry to Canada"
 doc #830-399/015

(Questions From the Floor) addressed to keynote speakers

MR. BOB PARSONS: My name is Bob Parsons. I am with Price Waterhouse in Toronto. I have one question for Mr. MacDougall and one question for Mr. Hendrick, and Mr. Gerard I don't have a question for you but that is only because you had an absolutely excellent paper. Mr. MacDougall, I will ask your question first and then I will give you a minute to think of an answer while I ask Mr. Hendrick his question.

It has been many years since we have seen a mineral policy paper from Ottawa. Those of us in industry, though, know that there is an agenda for the mineral industry in Ottawa. I would appreciate it if you could identify, preferably in order of importance, the three most important items on that agenda.

Mr. Hendrick, while Mr. MacDougall is thinking of an answer to that, a couple of weeks ago the U.S. Department of Defense announced that it had concluded that it no longer needed the massive stockpiles of metals which have accumulated over the past decade or two and was going to begin to unload those stockpiles of zinc and aluminum and other critical metals. And I was wondering if you could comment on the possible impact of that program on metal prices.

Thank you.

MR. KEITH HENDRICK: Well, I think the simple answer would be that at this time, when metals are if not in balance they are in surplus and any additional, unexpected increase of any significant size in availability, would obviously be a depressant on the market. But I think the U.S., in the past, has held vast reserves for instance of copper which have now been dissipated and the dissipation was done in an organized way, really in consultation with the industry, and we would hope that that would ultimately be the case.

I must say there is one stockpile that we haven't mentioned, which is the Canadian government gold reserves which they are selling at a regular pace, and frankly we would wish that they would deter those because they set a very poor example for the rest of the world.

MR. JOHN MacDOUGALL: Well, briefly I would like to say a few of the areas that we are certainly trying to work with.

I think I mentioned in my speech my luck in regards to finding out exactly what lands are going to be made available for us to be able to get onto, to be able to prospect and develop; the second certainly being joining ventures with CANMET in regards to technology and advanced technology; and the third part I think that we have got to look at with what may be happening tomorrow with the constitutional proposal that will be coming forward. And I imagine after that there will be a lot of discussion in the future of mining in Canada.

MR. FRANK NOLAN: Mr. Chairman, my name is Frank Nolan. I am with the consulting firm Nolan, Davis and Associates here in Halifax. I have a question for Mr. MacDougall and it really is a comment in relation to his statement that the mining industry is strong and vibrant in Canada.

When I see all the major mining companies looking outside Canada to spend their exploration dollars, when I see mines being closed with no apparent hope of replacement -- in Newfoundland alone there has been four mines closed within the past two or three years. It is the first time in my memory that there hasn't been a metal producing mine operating on the island of Newfoundland. Exploration offices there are being closed or substantially reduced, Noranda being one, more recently BP Resources are following suit.

Our firm receives applications daily from geologists looking for work but most of them have the same theme in their letters, and they want to get out of the mining industry and become environmental technologists as they see that as having some future. When you add to that the fact that universities are considering -- some of them in the Maritimes -- closing out their geology departments things certainly don't look good as far as exploration in the future in Canada is concerned. The junior mining companies are falling by the wayside. They are dropping off like flies and they are the ones who created quite a stimulation for exploration throughout this country.

Finally, if you look and consider the gaining influence that environmental extremists seem to be acquiring in this country -- and I emphasize the term "extremists" there because I think most of us in this room today are environmentalists and are very concerned about the environment and quite rightly so. But I tend to believe that it's the extremists who get most of the attention, both from government and certainly from the press.

So I guess my question, Mr. Chairman, is, Mr. MacDougall, I don't know how -- and I would like you to explain -- how you could make a statement such as you did that the industry in this country is strong

and vibrant, because if it is then it must be in a segment of the industry that I am totally unfamiliar with.

Thank you.

MR. JOHN MacDOUGALL: Well, Frank, there is no doubt at all there are sectors of the industry aren't doing very well, and I can refer to Cobalt -- my own area in Northern Ontario -- that has always had a mine in operation. But there are certainly positive parts within the industry that are going well. Nobody has to tell me that there is problems with the junior industry; I know it. The bruises on my ribs will certainly tell you how well I know it.

But we also got to look at we are in a changing climate. Commodity price, pressures that are being put on across this country by groups that, number one, do not understand our industry and sometimes we are not doing a good job in explaining what we do and the way we do it. The second factor is there is also international prices in marketing. You get stock markets and investment climate out there today that people aren't too interested in investing in mining for a number of factors. You can go back to '87. A lot of people thought they were going to very rich when they invested in mining. Some of them got paper still hanging on walls.

There is a lot of problems out there but the old saying is "If you always want to look at it on the negative side you are never going to go anywhere." If we are going to get people investing back into the mining community we have to be positive. And I think there are some good opportunities and, yes, there are some difficulties. But it is up to us, as industry, government and the labour force, to work together to try to resolve some of those problems we have there today.

MR. PIERRE ALVAREZ: Jerry Alvarez, from the NorthWest Territories, for Mr. Gerard.

We have been following with interest your developments in Northern Ontario Windigo Agreement that you mentioned. The question that I have for you, however, is that unions aren't very popular amongst a number of our communities, predominantly amongst the aboriginal communities because they do see an impediment. Large resource developments of the past, closed shops, have kept -- they felt -- (part of proceeding not taped at tape switchover) -- that have to bear the burden.

MR. LEO GERARD: I am not completely sure that I

understand the last part of the question, of how you get benefits to local people. If what you mean by that is -- I will try to be polite but the fact is that I can only speak for the history that I have in our union.

Those that are here from communities where our union is an important or a large force in those communities -- communities like Sudbury, Sault Ste. Marie, Elliott Lake, Timmins, Kirkland Lake, just to name a few -- we view ourselves as very active in community development and we have certainly been one of the driving forces -- if I refer to my home town of Sudbury -- in the driving forces towards economic diversification in Sudbury. And, in fact, with some pride, a steelworkers staff representative is president of the Sudbury Regional Economic Development Board. So that in that context we view ourselves as very important partners in community development in involving and expanding the economic base of communities.

With regards to the first part of your question, I think it has been a long time in coming and the fact of the matter is that there had been numbers of us within various trade unions - the Steelworkers being one of them -- who have felt for quite some time that the whole issue of employment equity, to expand employment equity, to give opportunity to those in our society that have been most disadvantaged. I can think of no group that is more deserving -- and deserving is even a condescending word -- more entitled to have economic opportunity than aboriginal Canadians. It just so happens that I am now the National Director of Union and I can expand that view.

The union also takes similar views with women, with disabled, that people who have been economically disadvantaged in our society need to have the reaching out, and one of the vehicles for reaching out is employment equity. In the issue of employment equity with aboriginal Canadians the education process for non-aboriginals is a very difficult process. What we have proposed to the arbitrator in the recent settlement was unheard of in a normal collective bargaining process; where, in fact, aboriginal Canadians get guaranteed quota plus preferential rights plus maintenance of their seniority while they get an opportunity to practice their cultural and economic heritage.

I personally feel very strongly -- and at this point I speak only for myself -- that I viewed this as an area where that was the only group within Canada that, in order to work -- and I will use mining because we are talking about it here -- to work in the mining industry under normal circumstances which have to either forfeit or substantially depart from their cultural and economic heritage. It's almost then asking them to make a cultural choice: if you are going to work in a white man's mine, you are going to abandon your culture. I think that's wrong. Whether my view will win out in our union, or whether it will win out in the broader labour movement, time will tell. I believe it's right so I'm convinced it will.

MR. LEO GERARD: Just one final point. I wouldn't want anyone to leave thinking that simply because Keith and I used the same word called "flexibility" that we agree on its meaning.

INSERT

Text of Morning Key Note Talks

1. Notes for an Address on Behalf of the Honourable Jake Epp, Minister of Energy, Mines and Resources; Presented by John MacDougall, MP; Document 830-399/016
2. The Importance of the Mineral Industry to Canada; Presented by Keith C. Hendrick, Chairman, Noranda Minerals Inc.; Document 830-399/015
3. Sustainable Prosperity for the Mining Industry; Presented by Leo W. Gerard, National Director, United Steel Workers of America; Document 830-399/017

MONDAY AFTERNOON, SEPTEMBER 23, 1992

WORKSHOPS

1. Mining and the Environment
2. Human Resources and the Mineral Industry
3. Financial Concerns of the Mineral Industry
4. Challenges in Mineral Exploration
5. Public Perception of the Mineral Industry
6. Global Concerns for the Mineral Industry

INSERT

Information about the Structure of the Workshops

Four Pages Added

1. List of Instructions for Co-Chairs, Resource People and Secretaries.
2. Description of each workshop: Co-Chairs, Secretary, Resource People, and List of Issues.

48th MINES MINISTERS' CONFERENCE

Halifax, Nova Scotia

Halifax Hilton

GUIDELINES FOR WORKSHOP CO-CHAIRS, RECORDING SECRETARIES AND RESOURCE PEOPLE

Monday, 14:00 to 17:00, September 23, 1991

1. CO-CHAIRS

- 1-1 Chairperson of the workshop is the Minister. She or he will guide the proceedings.
- 1-2 Chair will introduce the co-chair, resource people and the recording secretary. (Perhaps after introducing these people by name, he or she could ask each person to say where they are from and what they do.)
- 1-3 Co-chairperson is a senior person from industry or an industry association. He or she will assist the minister in running the workshop, provide comments, act as a facilitator ask questions of delegates, and/or make a short presentation.
- 1-4 Workshops begin at 14:00 and end at 17:00; there is a break scheduled from 15:00 to 15:20.
- 1-5 Together, Chair and Co-chair will introduce the topic of the workshop and the issues.
- 1-6 Call upon the resource people as needed to comment on a question or to provide more information.
- 1-7 Attempt to cover all of the issues.
- 1-8 Work with the recording secretary to prepare the one page summary of the workshop.
- 1-9 Take part in the discussions.

2. RECORDING SECRETARY

- 2-1 Summarize, in point form, the workshop. The summary should be one page, two at the most. The summary can be a mix of important comments, questions unresolved, issues needing further study/action and/or recommendations for action.
- 2-2 Prepare summary with the co-chairs.
- 2-3 Give summary to Howard Donohoe or leave for him at the Bedford Room (Nova Scotia Department of Natural Resources Office).
- 2-3 Present the summary at Plenary Session 2 on Tuesday morning. Time for each workshop summary presentation is 5 to 10 minutes. A few questions from the assembled delegates will be possible at the end of each workshop presentation. You may wish to refer some questions to the co-chairs or resource people.
- 2-4 Take part in discussions during the workshop.

3. RESOURCE PEOPLE

- 3-1 Be prepared to add information to a discussion at the chair's request.
- 3-2 Answer questions at the chair's request.
- 3-3 Freely participate in discussions.
- 3-4 If desired, or requested, make a short presentation to the workshop group.

48th MINES MINISTERS' CONFERENCE

Halifax Hilton
Halifax, Nova Scotia

Hosted by the
NOVA SCOTIA DEPARTMENT OF NATURAL RESOURCES
September 22 to 25, 1991

WORKSHOPS AND ISSUES
Monday Afternoon, 14:00 to 17:00, September 23, 1991

1. MINING AND THE ENVIRONMENT (Commonwealth B)

Co-chairs:

Hon. Chuck MacNeil, *Minister, Nova Scotia Department of Natural Resources*
John Amirault, *President, Chamber of Mineral Resources of Nova Scotia*
Don Eldon, *Vice President, Mining Association of Canada*

Recording Secretary:

Robert Holmes, *Yukon Department of Economic Development*

Resource People:

Hennie Veldhuizen, *Noranda Minerals Inc.*
Justyna Laurie-Lean, *Mining Association of Canada*
Tony Andrews, *Prospectors and Developers Association of Canada*
John Gammon, *Ontario Ministry of Northern Development and Mines*
Frank Nolan, *Nolan Davis Associates, Halifax*
Pat Phelan, Ed Bain, Kevin Gillis, Dave Hopper, *Nova Scotia Department of Natural Resources*

Issues:

- 1.1 Regulatory environment (jurisdiction overlaps; environmental assessments)
- 1.2 Liability issues
- 1.3 Native rights to land
- 1.4 Multiple use of land
- 1.5 Development of Offshore Resources
- 1.6 Future trends in land use policy

2. HUMAN RESOURCES AND THE MINERAL INDUSTRY (Harbour Suite B)

Co-chairs:

Hon. Shelly Martel, *Minister, Ontario Ministry of Northern Development and Mines*
John Keenan, *Vice President, Human Resources, Falconbridge Limited*

Recording Secretary:

George Patterson, *Northwest Territories Department of Energy, Mines and Resources*

Resource People:

Leo Gerlach, *United Steelworkers of America, Toronto*
Joseph Lammovich, *Indian Affairs and Northern Development Canada*
Paul Kariya, *Indian Affairs and Northern Development Canada*
Jean-Luc Blais, *Indian Affairs and Northern Development Canada*
Robert Cooper, *Cape Breton Development Corporation*
Rod McKenzie, *Pasquia Business Development Corporation, Manitoba*
Don Jones, *Nova Scotia Department of Natural Resources*

Issues:

- 2.1 Attracting, training and retaining skilled workers
- 2.2 Industrial disease
- 2.3 Native employment
- 2.4 Cyclic employment in the mineral industry
- 2.5 University programs in geology and mining engineering

3. **FINANCIAL CONCERNS OF THE MINERAL INDUSTRY (Northumberland Room)**

Co-chairs:

Hon. Harold Neufeld, *Minister, Manitoba Department of Energy and Mines*
Keith Hendrick, *Chairman, Noranda Minerals Inc.*

Recording Secretary:

Keith Brewer, *Energy, Mines and Resources Canada*

Resources People:

Ian Bayer, *Hemlo Gold Mines Inc.*

Robert Parsons, *Price Waterhouse, Toronto*

Gary MacEwen, *New Brunswick Department of Natural Resources and Energy*

Carroll James, Blair McMullin, *Nova Scotia Department of Natural Resources*

Issues:

- 3.1 Reclamation funding
- 3.2 Mineral exploration incentives
- 3.3 Mining taxes
- 3.4 Attracting investors

4. **CHALLENGES IN MINERAL EXPLORATION (Cornwallis Room)**

Co-chairs:

Hon. Rex Gibbons, *Minister, Newfoundland Department of Mines and Energy*
Fenton Scott, *President, Prospectors and Developers Association of Canada*

Recording Secretary:

Bruce MacRae, *British Columbia Ministry of Energy, Mines and Petroleum Resources*

Resources People:

Peter Dimmel, *Newfoundland and Labrador Exploration*

Don Pollock, *Corner Bay Exploration*

Ralph Cheeseman, *MILUC (Mineral Industry Land Use Committee)*

Rick Ratcliffe, John McMullin, Gord Adams, Paul Smith, *Nova Scotia Department of Natural Resources*

Issues:

- 4.1 Exploration and alienated lands
- 4.2 Mineral commodity reserves
- 4.3 Mineral exploration at home or elsewhere
- 4.4 Government intervention
- 4.5 Level of exploration and fiscal policy of governments
- 4.6 Role of prospector and junior exploration company

5. **PUBLIC PERCEPTION OF THE MINERAL INDUSTRY (Harbour Suite A)**

Co-chairs:

Hon. Maurice Byblow, Minister, Yukon Department of Economic Development

Isabel Mulligan, Senior Vice President, Investor Relations, American Barrick Resources

Recording Secretary:

Paul Dean, Newfoundland Department of Mines and Energy

Resource People:

Jacques Hudon, Mining Association of Canada

Edward Sampson, Energy, Mines and Resources Canada

Norm Mercer, Newfoundland Section, Canadian Institute of Mining and Metallurgy

Scott Smith, Nova Scotia Sand and Gravel

George O'Reilly, John Calder, Derek Johnston, Rob Naylor, Nova Scotia Department of Natural Resources

Issues:

5.1 Defining the problem

5.2 The Audience

5.3 The Message

5.4 Dealing with the intolerance of critics

5.5 Strategies for improving public perception

6. **GLOBAL CONCERNS FOR THE MINERAL INDUSTRY (Lunenburg Room)**

Co-chairs:

Bill Payne, MLA, Alberta

George Miller, President, Mining Association of Canada

Recording Secretary:

Mike Benson, Saskatchewan Department of Energy and Mines

Resource People:

Stuart Hunter, Coal Association of Canada

Margo Wojciechowski, Centre for Resource Studies, Queens University

John Hansuld, Prospectors and Developers Association of Canada

Jack Garnet, Consultants, Halifax

Dan Murray, John Fowler, Nova Scotia Department of Natural Resources

Issues:

6.1 Competition and environmental regulations

6.2 Inter-country trade in recycled mineral materials

6.3 Consumption and trade patterns

6.4 Non-traditional uses of mineral-based materials

6.5 Trends in mineral commodity usage

INSERT

Results of the Workshops

List of Main Discussion Points and Recommendations from each Workshop.

Eleven pages.

WORKSHOP 1: MINING AND THE ENVIRONMENT

1. Regulatory Environment

a. Observations:

- There is a need for harmonization of environmental regulations.
- EARP is creating process duplication, constitutional uncertainty, and un-necessary developmental impediments.
- Greatest financial cost of compliance or environmental regulation is related to time delay.

b. Recommendations:

- Two levels of government must co-operate to harmonize environmental regulation so that there is one review process.
- The Federal government should recognize the responsibility of Provinces to manage their natural resources.
- Groups concerned about Bill C-13 should raise concerns to the legislative review committee and also in workshops being conducted this fall.

2. Liability Issues

a. Observations:

- Corporate environmental policies are important in demonstrating due diligence. They must be taken seriously as they set a minimum expectation. Employees must become involved.
- There are varying approaches around the country on dealing with the issues of environmental liability. The practice of assigning liability for past problems to current holders is costing society by discouraging work near old mines where the best ore potential is.

b. Recommendations:

- There is a need to work towards a uniform, practical approach to the issues of liability for past environmental problems. A study group is needed.
- Incentives of some form should be developed to encourage clean-up of old mine sites and not discourage such activity.
- There must be a practical process developed to recycle old mining sites, by freeing up liability and encouraging new work.

3. Land Use Issues

a. Observations:

- ° Access to land in Canada is becoming more restricted. The NATLUS project is a valuable means of collecting and displaying data on land use for policy development by government and exploration planning by companies.

b. Recommendations:

- ° Concern was expressed as to how NATLUS information is interpreted and the possibility of misunderstanding. A co-ordinating mechanism is needed between Provinces/Territories and MILUC to ensure information is presented accurately.
- ° A communications strategy is required for NATLUS to ensure the information is effectively used and not misunderstood - to ensure the right message is presented.

4. Native Affairs

a. Observations:

- ° It is important for joint industry/native consultation and co-operation right now in developing understanding of land use regimes to be implemented after settlement of claims.
- ° Traditional land use values are not being adequately reflected in environmental reviews at present.

b. Recommendations:

- ° Land use assessments and standards must be sensitive to traditional use of land and cultural values of natives and others, and should not simply reflect technical criteria related to environmental protection.

HUMAN RESOURCES IN THE MINING INDUSTRY : WORKSHOP 2

The mineral industry faces a number of challenges in the human resources field in order to remain competitive. The group discussed a number of independent and interrelated factors contributing to the ability of the industry to attract and retain people.

1. Mines have a finite life. Individuals may have to work at several different locations during their career.

This means that in some cases employees who make an investment in a home where a mine closes may lose that investment.

Some members of the group suggested that companies and government should be prepared to meet the resulting financial obligations. They also suggested that companies should prepare their workforce for closure by providing employees with periodic status reports on the operation.

2. The nature of the jobs in the mineral industry is changing with fewer but more highly skilled employees being required. This conflicts with the relatively low education levels of the current workforce.

It was suggested that government, labour and companies should invest in retraining current workers as a priority.

Much of the current work force is aging and new workers will have to be attracted to the industry. There is concern about the type of training young people receive from our educational institutions vs the requirements of the industry. This problem has resulted in oversupplies or undersupplies of graduates in a number of technical fields.

3. The ability of the industry to attract new employees is hampered by the negative public perception of the mining related jobs.

Some members of the group cited teachers as a major factor in attracting people to the industry. They suggested providing teaching materials on the mineral industry to the schools.

4. Industrial disease is a concern to both employees and the companies. It was suggested that current practices relating to worker's compensation result in industry and workers being placed in a confrontational position making solutions difficult.

It was emphasized by many members of the group that workers must be made aware of the risks in the workplace. They suggested research by both government and industry is required to better define these problems. They also suggested medical personnel require training to recognize industrial diseases.

5. The industry employs relatively few aboriginal people. A number of examples of case studies, native demographics and the results of a questionnaire have been summarized in the IGWC Paper on Native Involvement in the Mineral Industry.

A key factor in low native employment cited by the group is the relative low education levels of aboriginal people. Training programs are an imperative. The group suggested that individual native communities require different approaches. Companies can assist aboriginal people in adapting to the industry by providing flexible working conditions that recognize traditional life styles.

Recently labour has assisted in increasing native involvement in the industry by accommodating aboriginal cultural differences.

6. The industry attracts relatively few women. Further effort is needed to attract women to these non-traditional jobs.

In summary, the group discussed a number of ways to attract and retain more people to the industry. These included a softening of the impacts of mine closure, retraining current workers to changing job requirements, improving the public perception the industry, dealing with industrial diseases and increasing the number of aboriginal people and women in the industry.

Workshop 3

FINANCIAL CONCERNS OF THE MINERAL INDUSTRY

3.1 Reclamation Funding (Main Issue)

Payments be deductible and annual fund earnings are not taxed during accumulation. Excess funds would be taxable.

3.2 Mineral Exploration Incentives (No magic solution)

A. Improve "incentive":

- i) because of lack of good exploration targets in Canada, support government incentives for real grass roots exploration (not advanced exploration)
- ii) proper securities regulations
- iii) tax-based incentives, rather than cash grants
- iv) reduce capital gains taxes

B. Can investment climate be improved without incentives?

- i) by lowering "artificial" value of Canadian \$
- ii) land access issue
- iii) environmental "impediments"
- iv) efforts by foreign countries
- v) R/D: MITEC

3.3 Mining Taxation (Short shift)

- Fully harmonized system difficult to achieve. Mine Assessors meet annually, however.
- Level of mining taxes not foremost issue facing industry

3.4 Attracting Investors (Important to solve)

- Industry and provinces wish to return to "Consultative Process", especially to meet with the Finance Minister.
- Lower interest rates, lower dollar exchange rate
- Current offshore flows of investment funds
- Government Gold sales

WORKSHOP 4

CHALLENGES IN MINERAL EXPLORATION

Exploration is the lifeblood of the mining industry. There was general concern about declining reserves/inadequate exploration for future. New exploration is needed to meet future demands for minerals.

Exploration at home and abroad

- ° More immediate opportunities abroad
- ° Unattractive fiscal and land policies in Canada
- ° Notwithstanding opportunities created by liberalization of third-world countries, need to emphasize Canada's great remaining mineral potential

Exploration and alienated lands

- ° "Political" risk associated with "restrictive" designations - if a deposit found, can it be mined?
- ° Difficulty of evaluating before designation - evaluation is never complete!
- ° Is it viable to adopt a strategy of multiple use with acceptance of operational restrictions in sensitive areas?
- ° Delays in settling land claims are a concern. However, most felt that, in time, industry can develop a good relationship with natives.

Bottom line is: - integrated resource management
 - settlement of Land Claims

Fiscal Climate

Fiscal climate is not attractive. The case for exploration incentives needs a stronger rationale based on "first principles".

Ideas include

- ° Support for federal -provincial MDA's to up-date geo-scientific data bases
- ° Encourage Prospectors' assistance programs
- ° Base fiscal and monetary policies on the needs of Canada's resource industries
- ° Tax system should recognize high-risk activities such as mining

Regulation

Foster true "single-window" regulation led by Mines Ministries. Eliminate federal-provincial duplication.

BRIEF REPORT ON WORKSHOP 5

PUBLIC PERCEPTION OF THE MINERAL INDUSTRY

HON. MAURICE BYBLOW - Co-Chair

ISABELLE MULLIGAN - Co-Chair

PAUL DEAN - Secretary

- ° There is a recognition and acknowledgement that the public perception of the mineral industry is currently very negative in Canada.
- ° There are many reasons for this, the first one being the legacy of the mining industry from a time when it cared less for the environment, for workers, for health and safety and mining communities. The problem is further enhanced by the fact that a few mining companies are continuing on with the attitudes and practices of the past and the public does not generally differentiate between companies.
- ° The industry is still viewed as a major polluter in Canada, e.g., the Inco smokestack is always shown as a major contributor to acid rain.
- ° There is a perception that Canada does not need a mining industry and there is little appreciation of its economic contribution to Canada or the use of metals and minerals in everyday lives. There is little recognition of the improvements that have been made in recent years with respect to the environment, health and safety and new technologies. The good news stories are not getting out to the general public or the message is not being focused.
- ° There is an obvious need for immediate action on this issue as well as a longer term strategy to educate the public on the importance of the mineral industry and its products in a modern society.
- ° Important target audiences include the general public, the media, educators, and more particularly workers, mining communities and community organizations.
- ° Industry should meet the public and the media head-on and be less defensive in its approach to media. The sins of the past need to be acknowledged but the real stories of today's modern mining industry need to be told. We need to change the perception, not the people who have the perception.
- ° Industry must set standards and comply with those standards if it is to have credibility. If there is no performance, there should be no public relations efforts. Public relations efforts should relate to real accomplishments.

- ° Action on this issue is being taken by the Mining Association of Canada, some provincial/territorial industry organizations and some provincial/territorial governments. The efforts by the province of Nova Scotia and Energy Mines and Resources Canada under the Mineral Development Agreements present a good model for action by provincial and territorial governments.
- ° Educational programs are very necessary for long-term objectives but there is immediate need for action by industry. MAC has developed a proposed program and a strategy to address the issue of public perception.
- ° There is a need for a national co-ordinating agency to exchange information, ideas and strategies with industry associations and governments.
- ° The workshop members and co-chairs recommend that ministers establish a sub-committee of officials to work with industry associations to address various means of enhancing the mining industry's reputation and to report to ministers at next year's conference.

Workshop 6

Global Concerns for the Mineral Industry

It was decided at the outset that the assigned issues needed to be reworked into the following:

1. Globalization of the World Economy
2. Supply and Demand Issues
3. Investment Issues
4. Mining and the Environment

1. Globalization of the World Economy

- economies are not national any more, we are moving toward a global economic web
- mining, as with other industries, is increasingly controlled by transnational corporations
- in light of this, the major factors affecting the development of the industry:
 - regulatory framework (especially environmental)
 - information flow (availability of geological data, access to data)
 - political stability
 - lead time to bring deposit to production
 - access to capital
- to the extent that a new world order results in increased stability, competition will be keener
- in the shorter-term, political stability in Eastern Europe will not likely be realized, but in the longer-term, the area will probably be a major world player

2. Supply and Demand

- scarcity of minerals, especially metals, will not be a major issue - scarcity is seen as a function of price
- in fact, most commodity prices have declined over the past several years due to:
 - substitution
 - new technologies

- these are unknown factors, however, that can affect supply and demand of refined minerals
 - ° energy input costs
 - ° world population growth (especially with scarce minerals)
- effects due to changes in Eastern Europe are hard to predict
 - ° need for hard currency may increase supply of minerals
 - ° infrastructure rebuilding will increase demand
 - ° net effect may be positive
- end of cold war may increase supply
- processing will increasingly involve recycling (50% of new steel is from scrap) which will reduce demand for one - but major issue of hazardous waste transport must be addressed

3. Investment Issues

- development and production investment will go to where there are quality deposits, acceptable regulatory requirements and political stability
- there are several known large mineral deposits where development costs are orders of magnitude lower than in Canada - may be offsetting risk associated with political instability
- certain other countries' investment codes are attractive to foreign investment whereas Canada's codes are increasingly seen as obstacles
- we need more data to understand what is happening with world mining investment
- from an economic development perspective, we should be looking at competitive VALUE ADDED. Canada is better positioned for competitive value added in the primary sector rather than in manufacturing
- the issue of burgeoning public debt and the cost of its service makes companies operating in Canada less competitive
- perpetual liability in mining is a serious issue affecting investment

4. Environment

- we've got to find the right balance between economic development and the environment
- there are opportunities to be competitive and deal with environmental impacts
- the industry has a major challenge in dealing with the "Environmental Fundamentalist" phenomenon. Public credibility is higher with environmental groups and academia when compared with government and industry. How do we deal with public perception?

TUESDAY MORNING, SEPTEMBER 24, 1991

PLENARY SESSION 2

HONOURABLE CHUCK MacNEIL: Good morning. Thank you all very much for being so punctual. We have a busy program today and we will try to stay on schedule as much as possible.

I think with our new format today I am going to go around the table first and allow each delegate at the table to introduce themselves. So, start on my left with New Brunswick and we will run around the table.

MR. GARY McEWEN: Gary McEwen, Province of New Brunswick.

MR. MORRISETTE: Fern Morrisette, Province of New Brunswick.

MR. MacRAE: Bruce MacRay, Province of British Columbia.

MS YOUZWA: Pat Youzwa, Province of Saskatchewan.

MR. ALLAN: John Allan, B.C.

MR. GOSSE: Gordon Gosse, Newfoundland.

MR. BENSON: Mike Benson, Saskatchewan.

MR. GIBBONS: Rex Gibbons, Newfoundland.

MR. PATTERSON: George Patterson, North West Territories.

MR. ALVEREZ: Pierre Alverez, North West Territories.

MR. BYBLOW: Maurice Byblow, Yukon; with me, my deputy, Nick Poushinki.

MR. KANIK: Brian Kanik, Alberta.

MR. NEUFELD: Earl Neufeld, Manitoba.

MR. SMITH: Brock Smith, Ontario, and my minister, Shelley Martel, will be joining us shortly.

MR. HOWE: Bruce Howe, Canada.

MR. JOHN MacDOUGALL: John MacDougall, Parliamentary Secretary to Minister Epp.

MR. MacNEIL: Chuck MacNeil, Nova Scotia.

MR. MULLALLY: John Mullally, Nova Scotia.

HONOURABLE CHUCK MacNEIL: For those in the crowd, you see something we do without a rehearsal.

Yesterday afternoon we had the six workshops which I think were extremely successful in having very open discussion on issues facing the Canadian mining industry. So, the first hour of today's session is to hear the reports of the six workshops, presentation of their observations, conclusions and recommendations, if there are any. And at the end of these presentations we will entertain comments, questions, from the group. We are going to hold all questioning until the end so that each group has a fair opportunity, I think, within the time frame we have to present the conclusions of their discussions.

So at this point we will call from workshop one, "Mining and the Environment," Bob Holmes who was secretary of that group to do the presentation.

MR. BOB HOLMES: Workshop one was entitled "Mining and the Environment." We had a quite wide-ranging discussion. It was a large workshop of over sixty people and I think we generally reached consensus on most of these issues that I will be mentioning here.

We broke it down into several categories. The first category was regulatory environment. And the key observations we made there was that there is a need for harmonization of the environmental regulations throughout the country. ERP is creating process duplication, constitutional uncertainty and unnecessary developmental impediments. And it was I think an important point brought up, was that the greatest financial cost of compliance on environmental regulation for companies is related to the time delay and not so much the actual monetary cost.

So, recommendations in this area were that the two levels of

government must cooperate to harmonize environmental regulation so that there is one review process, the federal government should recognize the responsibility of provinces to manage their natural resources, and groups concerned about Bill C-13 -- the new ERP bill -- should raise concerns to the legislative review committee and also in workshops being conducted this fall.

On the second area of liability issues the workshop observed that corporate environmental policies are very important in demonstrating due diligence. They must be taken very seriously as they set a minimum expectation for society and the work force, and it is important that employees of companies become involved in implementing these policies.

Another observation is that there are varying approaches around the country on dealing with the issue of liability for past environmental problems. The practice of assigning liability to current claim holders is costing society by discouraging work near old mine sites, where historically the best or potential we know of lies.

So, recommendations in this area included: that there is a need to work towards a uniform, practical approach to the issues of liability for past environmental problems and some form of study group should be set up; incentives of some form should be developed to encourage cleanup of old mine sites and not to discourage such activity; and there must be a practical process developed to recycle old mining sites back into the system by freeing up liability and encouraging new work.

On the third area of land use issues the group observed that access to land in Canada is becoming more restricted. The National Land Use Data Base, or NATLAS project, is a valuable means of collecting and displaying data on land use for policy development by government and exploration planning by companies.

So, recommendations in this area of land use were: that there was concern expressed as to how the NATLAS information could be interpreted and the possibility of misunderstanding, primarily by the public; a coordinating mechanism is needed between provinces, territories and the mineral industry land use committee to ensure that the information is presented accurately; and a communication strategy is required for NATLAS to ensure that the information is effectively used and not misunderstood -- in other words to ensure that the right message is getting across.

And the fourth and final area was native affairs. And here we observed that it is very important for joint industry/native consultation and

cooperation to happen right now in order to develop an understanding of what the land use regimes will be after claim settlements. In other words, talking should be happening right now.

And another observation was that traditional land use values did not seem to be adequately reflected in current environmental review processes. So, the recommendation there was that land use assessments and standards must be sensitive to traditional use of land and cultural values of natives and other people and should not simply reflect technical criteria around environmental protection.

And those were the observations and recommendations.

HONOURABLE CHUCK MacNEIL: Thank you very much, Bob, in having been involved in that workshop. I congratulate him on condensing it to that short presentation.

Some of the people in the room I don't think have received their copies of these presentations. It will be available very shortly. We will have them passed out as they arrive; they have just been printed this morning.

The second workshop, "Human Resources in the Mining Industry," and the secretary there is George Patterson.

MR. GEORGE PATTERSON: Thank you, Mr. Chairman.

Like workshop one, there was a wide-ranging conversation and discussion on the issues related to human resources in the mineral industry. In a lot of cases consensus wasn't reached on a number of these points, but recommendations were made by individuals within the group; some of these I will summarize for you.

The first factor was the very nature of mines themselves. They have a finite life. Individuals working in the mineral industry may have to work at several locations during their career. It often means that there is a disruption in their lives when you have to move. In some cases they may lose the investment of a home when a town with a single industry, such as a mine, shuts down. Some members of the group suggested that companies and governments should be prepared to meet these financial obligations. They also suggested that companies should prepare their work force for closure by providing employees with periodic status reports on the operation.

The second point made was the nature of jobs in the mineral industry are changing, with fewer but more highly skilled people required. This conflicts with the current nature of the work force. Many of the people working in the industry have a relatively low education level. It was suggested that government, labour and companies should invest in retraining of the people already in the industry as a priority. Even with this retraining there will be new workers required. There is concern expressed about the type of training young people receive from our educational institutions versus the requirements of the industry. This problem has resulted in over supply or under supply of graduates in a number of the technical fields.

The third point is the ability of the industry to affect or attract new employees is hampered by the negative public perception of the mining industry. Some members of the group cited teachers as a major factor in attracting people to the industry. They suggested providing teaching materials on the mineral industry to the schools.

The fourth point was in the area of industrial disease. This is a concern both to the employees and the companies, and it was suggested that current practices related to workmen's compensation result in industry and the workers being placed in a confrontational position, making solutions difficult. It was emphasized by many members of the group that workers must be aware of the risks in the workplace. They suggested research by both government and the industry as required to better define these problems. They also suggested that medical personnel require training to recognize industrial diseases.

The fifth area that was discussed was the fact that there are relatively few aboriginal people in the mineral industry. A number of case studies, native demographics, and the results of a questionnaire have been summarized in the IGWG paper on native involvement so I will not repeat them. A key factor, however, discussed by the group was the relative low educational level among aboriginal people. Training programs are an imperative. The group suggested that individual native communities require different approaches. Companies can assist aboriginal people in adapting to the industry, providing flexible working conditions that recognize the traditional lifestyles. Recently, labour has also assisted in increasing native involvement in the industry by accommodating aboriginal cultural differences.

The sixth point was that the industry attracts relatively few women. Further effort is needed to attract women to these non-traditional jobs.

In summary, the group discussed a number of ways to attract and retain more people to the industry. This included a softening of the

impacts of mine closure, retraining current workers to the changing job requirements, improving the public perception of the industry, dealing with industrial diseases, and increasing the number of aboriginal people and women in the industry.

Thank you very much, Mr. Chairman.

HONOURABLE CHUCK MacNEIL: Thank you, George.

Workshop three was "Financial Concerns," and recording secretary there was Keith Brewer.

MR. KEITH BREWER: In this workshop there were four topics: reclamation funding, mineral exploration, mining taxation and attracting investors. The issue of the level of mining taxes was not really considered to be a high profile issue.

For reclamation funding the subject here is the intent by some provinces to require payments by some companies into trustee funds which are established to assure the province that sufficient funding will be available at the end of a mine life for reclamation work to be performed. The issue is how payments made by companies should be treated for tax purposes.

The subject has been discussed intensively over the past year and longer. There had been a notion that the current income tax statutes could be able to provide tax deductibility. However, a clarification by the Minister of Revenue Canada has been to the effect that deductibility would only follow if payments by a company were irrevocable and not in the nature of a disguised royalty, which itself is not deductible.

The meaning of irrevocable is that it indicates a cost like any other business cost. However, it appears that neither companies nor provinces want really to design a fund with this characteristic. The alternative that satisfied proponents is that the Minister of Finance implement a tax change. All the arguments have been placed with the Minister of Finance and a decision is being awaited.

Potential parties to the funds want the tax deductibility issue resolved by making payments into funds deductible with annual fund earnings not being taxed. The possibility of any excess funding would be sold by having these excess funds later brought back into income for tax purposes.

On the Minister of Finance's side, there are lingering worries about breaching tax reform and the measure would be costly if it spread widely as a precedent to other industries. However, the general conclusion in the workshop was that a meaningful tax change was desirable because reclamation activity is important and should not be held up by an impediment in the tax system.

Turning now to mineral exploration. A lot of people in the PDAC and MAC and in government have been trying over the past while to see if they can find a solution to getting the level of exploration back up towards earlier levels. At the back of this is concern about the future lack of deposits. However, in our workshop there really were no magic solutions offered. The CEIC program at the federal level and the federal depletion no longer exist, but the federal flow-through share provision does and 100 percent write-offs still exist. Some provinces have moved and are moving to give incentives. In the present mood of investor confidence, which is not high, there is a worry that incentives will in fact no cause an increase in the supply of funds from people who traditionally supply those funds.

In looking at solutions for that one thing that was offered was less restrictive securities regulations as one thing. If incentives were brought in then tax based incentives would be preferred by the industry to cash grants and less bureaucratic. The issue of the 1987 tax reform having been introduced with the intent of promoting risk taking and entrepreneurship was questioned in the light of tighter capital gains taxation; the two-thirds up to three-quarters inclusion rate, for instance.

On reviewing the flow-through share program it was suggested that targets for incentives could be real grass roots exploration and that is different from what existed before which included advanced exploration including reopening of old mines, and the reason for this was the country really does need new showing so that companies are not chasing each other looking at previous showings.

The workshop also looked to see whether or not a solution could be found outside of the incentive route. A recurrent theme was that the return to higher profit rates of companies would provide funds for exploration. The view being advanced about the exchange rate is really follows this line of argument: that earlier Bank of Canada efforts to curb inflation by higher interest rates were necessary. The question, though, is how long one should pursue this policy given the other deleterious effects; that sometime Canadian interest rates should come down to world rates, restoring the external value of the dollar and company profitability. And so the argument goes.

We also addressed land access and environmental impediments and these were things we thought to overcome. Mention was made of MITEC, which is the Mining Industry Technological Council industry coordinating body as hopefully providing a solution in regard to improved exploration technologies.

Against all of this certain foreign countries have been making their investment climates more attractive so that Canada is presented with a moving target if we compare our rules and regulations against what is available abroad. As I said at the beginning there was no real magic solution found.

Mining taxes. Mining taxes themselves are not a key factor in a decision as to whether or not to bring a mine into production. This item was dismissed quite early on in the group's deliberation. However, on the issue of harmonization of mining taxes this is an issue that has been addressed before, particularly in the IGWG (phonetic) deliberations of 1987 and '88. However, the sentiment was not too different; and it is that provinces have different objectives in their mining taxes, therefore a difference between mining tax regimes will be difficult to eliminate. However, somebody noted that the provincial mines assessors now have regular meetings and this goes some way to producing some harmony in the system.

Lastly, on attracting investments. This issue is considered very important. There have been changes in government rules and regulations over the past, of course. One strident and I would say reasonable voice in the workshop made the point that government should consult with industry before, during and after, rather than springing changes on the industry. It was suggested that even if ministers are busy their appointment secretaries could improve good will by increasing access to ministers in this consultation process.

The issue of interest rates and the level of the Canadian dollar again arose in this item: their impact on competitiveness, profitability, attractiveness of Canada as a target for mineral investment. Mention was made of the popularity of mutual funds -- Europe funds, Japan funds, for example. It is evident, however, that international flows of funds in general, as well as the situation of Canadian multinational mining companies investing abroad, has to be an area of further consideration. And what was said in our workshop was really just an echo of the concluding part of Keith Hendricks' speech yesterday.

So, in very brief outline, that was what was covered in workshop three on financial concerns of the mineral industry.

HONOURABLE CHUCK MacNEIL: Thank you, Keith.

Workshop four: "Challenges in Mineral Exploration," and the secretary there is Bruce MacRae.

MR. BRUCE MACRAE: Thank you, Mr. Chairman.

Our topic, workshop four, was challenges in mineral exploration. And I think everyone agreed that there certainly is a challenge in that area. Fortunately, we were able to achieve a good consensus on many issues.

First and foremost, I think we all started with a common understanding that first, and I guess perhaps obviously, mineral exploration is essential to sustain the mining industry into the future and that that needs to be better recognized in policy. And, secondly, to recognize that exploration in recent years has been insufficient to keep pace and replace reserves that are lost to mining. So, our focus was really on the causes and the solutions.

We spent a good deal of time discussing the apparent exodus of exploration activity from Canada. We reviewed data pointing to declines in exploration activity within Canada, contrasted with increases abroad, including increased expenditures abroad by Canadian firms. I think it is fair to say that most of the group felt that that situation reflected the lack of exploration incentives in Canada and a going concern about a number of different land use conflicts. However, it was also noted that there have been an unusually large number of "special opportunities," one might call them, abroad: shelf buddy projects that companies have been able to invest in, and also the changes in policy in some third world countries have made their investment climate more attractive. Having said that, I think everyone was agreed that Canada still had great, untapped mineral potential.

Turning to the first issue that was of concern: land use. I think it is probably fair to say that land use issues are considered to be the most important, and we had a brief presentation by Ralph Cheeseland on the (phonetic) MILUC data which illustrated the extent to which land use conflicts have grown in recent years.

Let me just draw attention to a few key points concerning land use. Firstly, there appears to be as much concern about so-called restricted areas as about parks or other areas where mining is strictly prohibited. And, I think from the point of view of industry, there is a concern here -- I guess it boils down to one of trust -- that in certain areas mineral exploration is permitted in theory but there are question marks in industry's mind as to whether if successful discoveries are made whether they will ultimately allow it to proceed through to

mining. And that is I think a critical confidence builder; that industry needs to see that issue resolved.

In the past there has been a great deal of emphasis on the importance of carrying out mineral potential evaluations before designation. In our workshop there was a certain amount of scepticism attached to that. People felt that evaluations are never conclusive, and I think, secondly, are not particularly well suited to dealing with land use issues that involve restrictions as opposed to prohibitions.

Basically I think we concluded that the solution to land use involves a trade-off: one, an acceptance by government and the public of the importance of achieving multiple use of integrated resource management, and, in turn, an acceptance by industry of the need to accept operating conditions that are suited to the different areas and the different land uses and environmental sensitivities that are present in different areas. We looked at the working group five to determine how we would gain public acceptance for that kind of philosophy.

We also discussed native land claims. I think there was a very strong view expressed by, especially, the industry people in our group that those claims should be settled quickly. And I think industry expressed confidence that whatever the outcome of land claims, that industry would be able to develop a good rapport and working with native groups to promote economic development.

Our group echoed the findings of group one and some of the other groups concerning the importance of moving towards single window regulation and avoiding federal/provincial regulatory overlaps.

The second set of issues that concerned the group: basically the fiscal climate for exploration in Canada. We spent some time discussing Canada's interest in exchange rate policy and I guess needless to say the present policies found few defenders. Unfortunately, in our group, the solutions proposed -- all involved doing horrible things to the economists so I didn't bother recording those.

Of more immediate relevance there was strong consensus on ways to improve the climate for exploration, for continued support and enhancement of neo-scientific data base development through provincial and federal surveys and through federal/provincial MVAs, increased emphasis on prospector training and prospector assistance programs, and like the financial incentives group, a re-consideration of tax reforms to better recognize the high

risk nature of mining. I think these recommendations basically reflect the view of the group that the prospector and junior mining company have a continuing important role to play in discovery process.

To conclude, I would like to say it was also recognized that in looking at financial incentives the industry did recognize that they had to work hard to develop a strong rationale for fiscal incentives that was based on some principles, first principles, if it wished to avoid the stigma attached to special pleading. And I think work on that front would be important to carry on. And I think that basically concluded our group.

Thank you.

HONOURABLE CHUCK MacNEIL: Thank you, Bruce.

Workshop five was "Public Perceptions," and Paul Dean is reporting for that group.

MR. PAUL DEAN: Morning.

The workshop in public perception in the mineral industry was co-chaired by Maurice Byblow from Yukon and Isabel Mulligan from the American Barrack Resources. They very effectively kept the workshop moving along and helped the group to come to a consensus and highlight a number of points related to the issue. And I will summarize those points.

There is a recognition and acknowledgement that the public perception of the mineral industry is currently very negative in Canada and that very little has changed since the Angus Reid poll conducted two years ago. There are many reasons for this, the first one being the legacy of the mining industry from a time when it cared less for the environment for workers, for health and safety and for mining communities. The problem is further enhanced by the fact that few mining companies are continuing on with the attitudes and practices of the past, and the public does not generally differentiate between companies.

The industry is still viewed as a major polluter in Canada. For example, the INCO smokestack is always shown as a major contributor to acid rain in TV programs. There is a perception that Canada does not need a mining industry and there is little appreciation of its economic contribution to Canada or the use of metals and minerals in everyday lives. There is little recognition of the improvements that have been made in recent years with respect to the environment, health and safety, and new technologies.

The good news stories are not getting out to the general public, or the message is not being focused. There is an obvious need for immediate action on this issue, as well as a longer term strategy to educate the public on the importance of the mineral industry and its products in a modern society. The important target audiences include the general public, the media, educators and more particularly, workers, mining communities and mining community organizations.

Industry should meet the public and the media head on and be less defensive in its approach to the media. Sins of the past need to be acknowledged, but the real stories of today's modern mining industry need to be told. We need to change the perception, not the people who have the perception. Industry must set standards and comply with those standards if it is to have credibility. If there is no performance there should be no public relation effort. Public relation efforts should relate to real accomplishments.

Action on this very important issue is being taken by the Mining Association of Canada, by some provincial and territorial industry organizations, and by some provincial and territorial governments. The efforts by the Province of Nova Scotia and Energy, Mines and Resources Canada under the mineral development agreements we believe present a very good model for action by provincial and territorial governments.

Educational programs are very necessary for long term objectives, but there is an immediate need for action by industry. MAC has developed a proposed program and a strategy to address the issue of public perception but there is still a need for a national coordinating agency to exchange information, ideas and strategies with industry associations and governments, and, in fact, this started in the workshop yesterday; there was very good exchange of information, programs and strategies.

In conclusion, the workshop members and the co-chairs recommend that ministers establish a sub-committee of officials to work with industry associations to address various means of enhancing the mining industry's reputation and that this group would report to ministers at next year's conference in the Yukon.

Thank you.

HONOURABLE CHUCK MacNEIL: Thank you, Paul.

Moving ahead very smoothly. We are going to have a fair amount of time for discussion afterward.

Workshop six is "Global Concerns," and the secretary there is Mike Benson.

MR. MIKE BENSON: Mr. Chairman, the group considering global concerns in the mineral industry broke the topic into four major categories: globalization of the world economy itself; supply and demand issues; investment issues; and environmental issues.

First, with respect to globalization of the world economy, there was some recognition that economies are not so much national any more and are moving toward a global economic web. In fact one person described it more as a leaky sieve and we can't escape the international competition that this kind of economic environment requires. Mining, as with other industries, is increasingly controlled not just by U.S. or Canadian multinationals but by truly transnational corporations. And it is within this context that the major factors affecting development in the industry include things such as the regulatory framework of a country, information flow -- not just the availability of geological data but the fast global access to that information; obviously political stability, lead time to bring mineral deposits to production -- and the slower that lead time of course the less competitive the industry in that country; and access to capital. To the extent that this new world emerging order results in increased political stability, competition will be keener for Canadian companies.

In the shorter term there was some discussion of the impact of the changes in Eastern Europe. It's not believed that the stability that many hoped for will be realized, but in the longer term there is every probability that Eastern Europe will be a major world player in the resource sector.

With respect to supply and demand of minerals the people in the group were quite emphatic that scarcity of minerals is not really an issue; it's really a function of price. A commodity may be scarce at sixty cents a pound but not at sixty dollars a pound; that kind of thing. In fact, there was a realization that most commodity prices have declined in real terms over the past year. And some of the factors involved in that include things like recycling, substitution -- you know, the components of a 1970 Chevy are a little different than one from the '90s; new technologies, including extraction processing and use of these minerals, and this will likely continue for the future.

There are some unknowns, though, within this scenario. Certainly energy input costs can increase the costs of certain products and world population growth is a bit of an unknown. We expect it to grow substantially and this may affect the demand on, particularly, scarce minerals.

With respect to supply and demand, again, Eastern Europe is a bit of a wild card. There clearly will be a need for hard currency, which could potentially increase in the short term supply of minerals. However, with rebuilding the infrastructure there, there could also be an increase in demand. And I think the consensus of the group was that the net effect could be quite positive.

In the future it was also recognized, with respect to demand for minerals, that recycling is going to become an increasingly important factor. For example, about fifty per cent of new steel now comes from scrap. But there is the major issue, though, of transportation of things which are often classified as hazardous.

With respect to investment, development of production investment will tend -- even more so in the future -- to go where there are quality deposits and acceptable regulatory and political frameworks in this global economic web. There are several large known mineral deposits elsewhere around the globe that may be considerably cheaper than in Canada to bring into production. And this may be offsetting the risks associated with any residual political instability that may be there.

We need to more fully understand what is happening with mining investment among countries. There is some concern that Canada's investment codes are seen as obstacles and that is less so in other countries, but it is not clearly understood and there was some interest in getting more information about that.

Also, the issue of public debt here in Canada and the cost of its service, makes Canadian mining operations less competitive and that is an issue. And of course the issue of perpetual liability in the mining industry is a serious investment issue.

But notwithstanding of those I think the group was fairly optimistic and there was the notion that from an economic development perspective we should be looking at the notion of value added -- and Canada is really well positioned for value added economic activity in the primary sector rather than concentrating more on the manufacturing area.

And, lastly -- it has been talked about in a number of groups -- but with the environment we have to find of course the right balance between economic development and environmental issues. There are opportunities to be competitive and deal with the environment. The major challenge at the end of our discussion was around dealing with the single issue of

lobby group, particularly when public credibility is higher often times with environmental groups and academia when compared to government and industry, and this unbalanced view is a major challenge for us and we need to find mechanisms to deal with that.

Thank you.

HONOURABLE CHUCK MacNEIL: Thank you very much, Mike.

Before opening it up I think I will take this opportunity to thank our secretaries first for the quality of the reports that we heard this morning. When you consider that we ended these sessions at 5:00 o'clock yesterday and the summations are prepared and out to us this morning I think they have done a tremendous job. I trust they all reflect what went on in the particular groups. If they don't, you will have the opportunity to say so in a moment.

I would also like to thank the ministers and the co-chairman, the resource people as well who were involved in the workshops yesterday and kept them on track and were able to extract this much information on behalf of the group. So, for all those participating, thank you very much.

At this point we will open the floor for comments, discussion, or whatever, on any of the workshop reports or on the format of the workshops themselves if you care to comment.

MR. MAURICE BYBLOW: Mr. Chairman, I would reinforce your comments about the quality of the work from the reporters. They did an excellent job.

Calling attention to the report number five. There was something of a recommendation in the closing paragraph of the report and there was general consensus in that workshop that there be some follow up on the issue of the mineral industry's public perception.

If you note, Mr. Chairman, the request is that the ministers call on the creation of a sub-group to do some follow up with the industry and report back at next year's conference. I would suggest, Mr. Chairman, that perhaps, if it is agreeable with other ministers, that we direct the intergovernmental working group to strike such a sub-committee, work with the Mining Association of Canada, and report on progress related to that workshop series of issues listed at the next conference.

HONOURABLE CHUCK MacNEIL: Thank you, Morris.

Any comments from other ministers around the table, deputy ministers? Does silence imply agreement?

UNIDENTIFIED: Group on financial matters.

I may have misunderstood the rapporteur who seemed to indicate that the industry was suggesting that access to ministers and meeting with ministers of mines was not all that it might be. I don't believe that was the impression we were trying to make. I think our concern was meeting with the Minister of Finance federally, particularly on the issue of reclamation funding. We are in the anomalous position of being required to provide closure funds and post-closure funds, but no way in particular of trust fund accounts to deal with that in any reasonable tax way that is going to assist companies and keep investment flowing.

So, I believe that the point was that we are -- and on behalf of Ontario I would say we are quite happy with the access we have to our Minister of Mines, but we are not very happy with the access to the federal Minister of Finance, particularly as it relates to reclamation funding. And, further, I believe that the Minister of Mines for Manitoba had agreed to lead a delegation to meet with the Minister of Finance to further discuss this issue with him and we thank the Minister of Mines for Manitoba for taking and leading that initiative.

UNIDENTIFIED: I would like to just make one brief comment.

With the changing of ministers, Minister Epp has already communicated by letter to the Minister Mazinkowski of the priority to be given to that, and I will certainly be taking the message back to Minister Mazinkowski, the concerns of having a meeting.

HONOURABLE CHUCK MacNEIL: The response is satisfactory, I presume?

UNIDENTIFIED: We, in Manitoba, will continue our efforts to meet with the Minister of Finance and we have indeed a request in his office for a meeting at his earliest convenience.

UNIDENTIFIED: If we could go back for a moment to workshop five and the recommendations presented there and move by Mr.

Byblow that we adopt that recommendation and a government working group strike the committee and report back at next year's meeting.

All around the table agreed to that and we will accomplish it now rather than later this afternoon. All agreed?

Very good. Thank you.

HONOURABLE CHUCK MacNEIL: Would you please identify yourself for the benefit of those recording?

MR. PETER DIMMELL: Yes. Peter Dimmell, Newfoundland/Labrador Explorationists.

In our workshop four, "Challenges in Mineral Exploration," under "fiscal climate" we not only recommended that we encourage prospectors' assistance programs but we looked at the tax treatment of, particularly, option payments that prospectors receive. We suggested -- or I think it was generally agreed -- that the tax treatment should be not as straight income. These people are putting a lot of their own money back into the ground and it's one of the few things that is being done now across Canada. These guys are putting their own time and energy into this and I think they should deserve a little different treatment of the option payments that they get for their properties. I think the recommendation, from what I could remember, was that the tax treatment of the option payment would be not as income but some other way, maybe as a lower rate or possibly no cost at all.

HONOURABLE CHUCK MacNEIL: Anyone wish to comment or enlarge upon that?

MR. BRUCE MACRAE: I think Peter is correct, and I thought in my summary that I had indicated that that was the case, that we did think that the tax system should recognize the high risk nature of mining and that suggestion would be one way to do that.

HONOURABLE CHUCK MacNEIL: Thank you, Bruce.

Are there other questions or comments from anywhere in the room?

MR. JACK PATTERSON: My name is Jack Patterson. I am with the B.C. and Yukon Chamber Mines.

And what I haven't heard here today and with these workshops, et cetera, is that what a disastrous area it is out there for a lot of people in the exploration business. This has been the worst year for financing in thirty years. There are people out there that are losing their homes, they are losing their businesses, and the real challenge, I think, is to get our act together somehow and see if there is some way we can expedite things so that next year is going to be a better year than this year, because this has been a very difficult year for a lot of people.

HONOURABLE CHUCK MacNEIL: Thank you, Jack.

Are there no further comments? Does anyone want to comment on the form we used with the workshops and whether it is a recommendation to those organizing next year's meeting that perhaps this would continue or not continue?

MR. GEORGE MILLER: Mr. Chairman, my name is George Miller. I am with the Mining Association of Canada.

I think for many years -- for several years in any case, during the 1980s -- the mining industry made representations to this conference that more time be allowed and more joint discussion of issues, and that industry somehow be involved in the organization of the conference. I believe that Nova Scotia has responded magnificently to those representations and I would like to congratulate your officials, and I know your deputy minister will not be offended if I mention Howard Donohoe by name, who made a career for the past year of consulting and massaging the process so that it would be fruitful; and I would just like to mark our appreciation for that.

HONOURABLE CHUCK MacNEIL: I trust that means you would like it to continue.

MR. MAURICE BYBLOW: Mr. Chairman, perhaps it is the appropriate moment to pick up on the association's comment, and on behalf of all ministers and jurisdictions, thank you for the excellent hosting of the conference, and use the opportunity to invite you and your colleagues to the Yukon next year along with a special personal invitation to the industry and labour organizations to come North and see some of the finest country in our land next year.

HONOURABLE CHUCK MacNEIL: We thank you for that invitation and I am sure we all look forward to going to Yukon and participating in a good conference there, as well as having a chance to see your

great country.

If there are no further comments from the floor, what we will do is simply move things up fifteen minutes. It doesn't mean you are free till 10:45; now you are only free till 10:30 and we will reconvene at 10:30.

Thank you.

(Prospectors and Developers Association of Canada)

HONOURABLE JOHN MacDOUGALL: Moving right on, we would like to ask the presentation of the Prospectors and Developers Association of Canada, Mr. Fenton Scott, President, please.

MR. FENTON SCOTT: Thank you. Ladies and gentlemen, you can save your applause.

I would like to bring you views and some of the concerns of the Prospectors and Developers Association about our industry and how we see it. As an eighteen year veteran, on and off, of these Mine Ministers' conferences I guess I qualify as some kind of a groupee or a junkie, but perish the thought.

Frankly, as regards to the future of the mining industry in Canada we in the exploration business are scared, real scared. An unfortunate sequence of events and recent decisions threaten to put us out of business. Now, as an organization approaching our sixtieth birthday, we have tried to prepare a brief reflecting our new and respectable majority. We intend to refrain from taking cheap shots at elected officials, you will be happy to know. In fact, since there isn't a safe seat in the country, common decency forbids us from kicking somebody when they are down.

Incidentally, about two elected officials I can give you a bit of report. We understand that Jake Epp is actually alive and well and living somewhere in Ottawa, or was seen in that vicinity. We can't give you the same assurances about Don Mazankowski. We have written letters to his office and we have received replies over his signature. But we are very suspicious. Those are exactly the same replies we got over Michael Wilson's signature, so I think they are just recycling the same old correspondence and we are not even sure Don Mazankowski exists at all.

Can I have the first slide, please?

Actually, we feel that the main culprit who led us to our present predicament are the -- and I use the word in quotation marks -- "economists" from the Bank of Canada. These are the scientists who have assured us that the recession is over. That projection really compares pretty well with your daily astrological forecast in the newspaper and we can see why economists are presently trailing undertakers in the popularity polls.

This first slide tells it all. If any honest banker saw one of his customer's debts piling up at that fantastic rate -- the first slide -- he sure wouldn't extend any more credit or make it easier for that customer to borrow money. We feel, if we have to tackle this debt, we have to force expansion of our economy in order to get out of the hole. Cutting expenses is really not a practical solution because we are ten or twenty years too late.

Expanding our economy means encouraging our industries to be strong, and the mineral industry is one of our strongest industries. Canada is fortunate to have a rich endowment of mineral resources with immense reserves yet to be discovered and tapped. Only with our natural resources will we be able to maintain our position in world trade, to keep our standard of living, and reduce our national debt, and also pay for the social, environmental programs that are now listed at the top of our public priorities.

Next slide, please.

Basically, mining is of central importance to Canada's economy. This picture we show you here is basically taken by dividing the population of Canada into our mineral production and compare it with other parts of the world. Only Australia is higher than we are, and the average around the world is much less than the \$50.00 shown for the United States. So, for every individual Canadian mining is ten times as important as it is for individual Americans. Mining really pays \$640.00 Canadian money to every person in Canada, more than any other single country. Without mining we return to the third world.

Next slide, please.

This gives you some idea of the contribution of mining to three communities in Canada. Natural resources have always been the engines that drive our regions but unfortunately with the intense urbanization of our Canadian society we often fail to look at where the money is coming from. Basically, as I mentioned earlier, we are pretty good in zinc. We used to be tops in nickel until the Russians stepped ahead of us. Nova Scotia is a world leader in gypsum, second place in maple syrup.

Anyway, getting down to things is that basically it was mostly gold deposits that opened up our hinterlands: from the Yukon, North West Territories and the Canadian Shield and at one time Nova Scotia was the leading gold producing area of the world -- California they found some and put us out of business, but that is another story.

Anyway, the expertise which Canadians have gained through a long history of mining has ensured our reputation. Gold demand exists for our experience and our knowledge and we in Canada actually rank third in the world in the export of technical ability. In mining, geoscience contributes a large part to those exports.

Next slide, please.

Now, natural resources account for one dollar for every five of the wealth we generate in this country. However, when we consider the productivity of the workers in Canada's manufacturing sector -- which is what we see here -- basically, the comparison of the orange slide is what it costs us per unit compared to 1985 in Canada, compared to the yellow line which is our American largest competitors. We are not doing very well.

From March 1990 to March 1991 Canada recorded the biggest decreases among twenty-four leading nations in the number of jobs in manufacturing, construction and the service centres. We are going to be stuck with mining whether we like it or not. For example, the resource sector is responsible for twenty-five per cent of British Columbia jobs, though it only produced fifteen per cent directly. But if we stripped away the resource base from British Columbia all the other service jobs would disappear with it.

The conclusion of this is while the service sector has grown an awful lot over the last thirty years it cannot generate economic growth, at least as well as the natural resources dependent sectors do. We Canadians must rely on our natural resources to pay for our standard of living. These are the wealth creating sectors of our economy.

And, as I mentioned earlier, there continues to be great growth potential for the mining industry in Canada. It's our exploration sector which will determine whether this potential is realized or not and discoveries mark the first step toward those reserves that we need, but we need a lot of new mines to maintain our production rate and keep our costs competitive.

Next slide, please.

Today's prospectors and our explorationists who are seeking Canada's future mineral discoveries face a brand new set of obstacles. We have conflicting, almost warring, environmental jurisdictions. We have got a complex maze of very imprecise environmental regulations. It's awful hard to obey the law when you can't find out what the law is.

For operating regulations we have multiple levels. We have serious uncertainties with regard to land access and with regard to land ownership -- for the mining rights ownership, and we have what we term as a negative tax treatment for risk capital in Canada.

The next slide, please.

Figures on exploration activity in this country indicate that fewer and fewer individuals and companies are willing to tackle these obstacles. Investment exploration has dropped dramatically over the past years, confirming the negative trend which began in 1989.

Next slide, please.

The raising of money has also fallen off, almost as dramatically.

Next slide, please.

And the Canadian Diamond Drilling Association refers to their current drop in activity as calamitous -- it's a nice word.

These trends are particular serious - next slide, please -- given the decline in our base metal reserves which began almost a decade ago. That drop, from 60,000,000 tonnes to 45,000,000 tonnes in only four years, explains really our causes for alarm. Most of the exciting discoveries that have been reported over the last two years and which are now being developed were financed for the sale flow through shares or supported by grants under the Canadian Exploration Incentive Program. Both of those sources of funds have now disappeared. However, with the declining exploration investment in Canada we are faced with the reality that these recent discoveries will not be enough to replace the half billion tonnes of ore we mine each year, nor does it give any assurance of job security to the roughly 300,000 people engaged in mining and metal manufacturing.

There are additional adverse factors which are imposing a negative influence on business and investment in general. In this respect, two

policy decisions by the Bank of Canada have been highly detrimental to the global competitiveness of the mineral industry here. In 1990 Canada's central bank was the largest seller of gold bullions in the entire world; at one point, 3.4 million offses (phonetic); that's 50 tonnes of gold. The Bank of Canada sold this gold in direct competition with Canadian mining companies. These sales certainly undermine our industry efforts to create additional demand for the metal, they diminish our potential for maintaining increasing production, and they certainly don't help regional economic development.

Another decision, the decision to manipulate our exchange rate, now to 88 cents U.S., has even more discouraging consequences. A report from the mining industry in British Columbia estimates that for every one cent increase in the value of the Canadian dollar the mining industry in that province alone loses \$25,000,000.00.

Next slide, please.

The stated intent of the high dollar, high interest policy of the Bank of Canada is to fight inflation. This policy is not working. Our studies show that among all the leading industrial nations Canada has one of the highest inflation rates. We pointed out here our consumer prices. Number three from the bottom are wages and the real pay that we have to take home is the lowest in the industrialized world.

Next slide, please.

What is the result of this? Our gross national product, the lowest in the industrialized world. Retail sales prices -- retail prices, actually, rather than the sales, have gone up to an all time high. The next one is 3.2. And what it nets back to is that we have the highest growth in unemployment and our gross national product is falling down. And actually, from a prospectors point of view, we realize that if any mining promoter were to practice price manipulation like the Bank of Canada is doing they would certainly go to jail, and deservedly so.

To cure our economic ills the Bank is relying on a metal prescription dating back 300 years, which says "If thy patience be ill-humoured then purge him and bleed him forthwith. Continue to draw blood for four times each day until the illness subsides and health is regained." That's not the Red Cross we are talking about.

Another major factor in the competitiveness of our mining industry is the high rate of inflation. We are witnessing tax reductions in other

mining nations, and really, to be competitive, we are going to have to follow suit.

We also see that, while Canada's policy continues to discourage mining investment, other countries around the world are becoming increasingly hospitable. In our brief to you last year we pointed out that several countries were changing the rules to encourage mineral investment. We could report more on these initiatives.

In June, for example, the government of Greenland -- one of our next door neighbours -- announced new rules whose intent was to create a more receptive environment than in the past for providing stability and security of tenure -- which we have been crying for -- competitive conditions, and easy access to geological information. Now, in that case they are trying to copy us. New mining regulations in Mexico now invite foreign investors to go 100 per cent of mining ventures, up to 12 years. Bolivia has a new mining law. And in our brief we give a list of the changes being made outside Canada as inducives to attract exploration.

Now, some examples can be shown on the next slide -- one more -- comparing Canadian mining companies and American mining companies, 1988 to 1989, and this was prepared by the Proscigenous (phonetic) Society of Economic Geologists. Basically they say as far as U.S. companies are concerned they have cut their investment in Canada in half, they have increased their investment in the United States by eight per cent, and increased their investment outside Canada and the United States by 25 per cent. Canadian companies have increased their investment in the United States by 200 per cent, they have increased their investment outside Canada and the United States by 200 per cent, and dropped their investment in Canada by 20 per cent.

Examples of this: in Mexico there are 30 foreign companies that are active; 23 of these are Canadian. In Chile, where right now seven out of the ten largest mining projects in the world are going on, Canadians invested 83 per cent of the capital investment that was put in last year; some \$400,000,000.00 which is almost exactly what we invested in exploration in Canada.

Canadian explorers are welcomed and encouraged overseas. As a world leader in exploration and mining technology the Canadian mineral industry and its service industries show a level of expertise which is recognized and welcomed world-wide. Actually, Canadian mining companies have been investing outside Canada for many years. Their ability to do so was based on the financial strength of the ministry in this country and we think that global

diversification is a very sound strategy for our industry, but not necessarily at the expense of growth in Canada. Since we neglect our domestic industry we are losing employment opportunities and stimulation to regional economies. Furthermore, we are not finding new mines.

PDAC -- Prospector Developer Association -- next slide association -- feels that Canada is still one of the best countries in the world for mineral discovery because of its combination of the largest inventory of favourable geology in the world. We have some really highly skilled exploration professionals. We have got a vital, hard working, experienced community of prospectors, certainly we have got the best underground miners anywhere. We have the minerals and in exploration we have technology leadership. We have got a top notch service industry and we have political stability. Even New Brunswick has decided to go to multi-party government, following Poland and Russia.

Now, these advantages actually are being outweighed by our insistence on a complex regulation regime and a lack of incentives for investment in exploration. These are two of the most important factors contributing to our current downturn and which continue to frustrate our ability to replenish our declining ore reserves. Canada is perceived outside as having multiple and often conflicting environmental rules which are aimed largely at the mining industry. Now I say this is perceived; I don't think it's actually true but this is why people don't like to spend money here.

Next slide, please.

The long term implications of this trend shown here are really serious. A drop in reserves is very shortly going to lead to a drop in production rates. Our failure to find more mineral deposits is going to lead to a drop in exports and it is going to erode our ability to compete effectively in world markets. There is an almost unlimited potential for the discovery of new mines in Canada. However, we do not have an inventory of ore bodies to replace the mines we are now depleting.

Next slide, please.

Richard Lipsey (phonetic) recently said that competition is the most efficient way to generate the dynamism that creates and increases a nation's wealth. The federal government has paid lip service to this principle in the recent discussion paper called "Prosperity Through Competitiveness for Canada." We firmly support any initiative that will stimulate Canada's competitiveness on the world scene. We believe that any strategy which will

enhance our country's competitiveness is most likely to succeed if it is based on the skills and resources at our disposal. We should concentrate on what we do well.

Our natural resources provide the only solid basis for competitiveness in this country right now. Our mineral industry can and must be allowed to continue as a lead player in the global competition. We disagree strongly with the federal government's recommendation in prosperity through competitiveness, to move away from natural resources and toward so-called "high technology" industries -- industries such as computers, semi-conductors, instrumentation, bio-technology, medical bio-technology, and various forms of communications.

Let's not play this thing down too far. Canada boasts a small number of world class high technology companies. However, we must realize that even with a major investment in research and development any entry into the high tech race is going to be running pretty well to the back of the pack. Canada is not ready to compete for a share in markets which are already dominated by established players with significant capital, expertise and manufacturing ability. Again, we are a little late.

We believe that Canada's optimum strategy is to avoid those areas where we lack any advantage and capitalize on our strength. That is, as far as our miners are concerned, our long term and recognized ability to supply the products that the world demands. We must follow the example of countries like Germany or Japan by concentrating on what we do well, but we should not forget the fact that the Canadian mining industry is a world leader in advanced technology. Our knowledge and experience in exploration techniques, geo-scientific concepts, certainly geophysical instrumentation technology, underground mining, milling and smelting methods, are recognized and in constant demand throughout the world. We feel that nations with limited natural resources will provide the market for a mineral industry. Sales opportunity for mineral products can expand as metal consumption rises throughout the world, particularly in newly industrialized countries.

Now I would like to talk a little bit about mineral policy for Canada. A few years ago the Government of Canada set the following six -- six, mind you -- diverse objectives for mineral policy. The first was to provide a fair and balanced fiscal and regulatory framework. Those are nice words. We translate that as to mean to tax as hard as we can. The next one was to foster the development of the minerals and metals sector, the foundation for regional economic development. In other words, if you are going to make a mine only make it in a low employment area or high unemployment area.

It says "To promote improved technological performance and increased international competitiveness in all facets of the industry." I am not quite sure what that meant but that is just about the time that the same government cancelled the research and development allowances. It says "To assist workers in communities affected by industrial adjustment." That is the polite way of saying if the mine gets shut down give him a ticket to go some place else.

The next one is to facilitate, enhance mineral and metal exports that access to new and traditional markets. I have never been quite sure what that means. I think the idea is that we should -- "enhance exports" means that British Columbia has to quit selling concentrate to Japan and build a smelter and only send all the metals. Nothing has happened in that.

And, finally, "Provide technical, timely information." I think they are performing that very well.

We feel that these objectives reflect merely a care in maintenance attitude toward the mineral industry. What we would like to see is a policy built around a clear and unambiguous statement of support for the central role that the Ministry of Energy plays in the economy.

From all this we have developed a few conclusions, recommendations or summaries. We feel that a strong and competitive metal industry is vital for our future. Base metals and now gold reserves are in a decline and new exploration activity has experienced a serious downturn. In order to remain competitive and realize our place in the world we have got to develop a strategy which is aggressive and creative.

We recommend certain items to be part of that strategy. First, that I just mentioned, Canada must have a mineral policy in place which reflects a clear and unequivocal political mandate to expand the mining and mineral industry. We need to cease being embarrassed about being miners. The next thing we think is the federal government, especially, must review its policy of taxation and financial incentives. This is the area which has the greatest potential impact on Canadian exploration for minerals.

Going back a few years, a big policy change is when they threw away the three year tax free period -- your parents will tell you about that - and we decided that people who were mining should be forced through a depletion allowance to spend some of the profits they were going to make in finding new mines. Both of those initiatives have long since disappeared. We think something like that should come out again.

We feel that we have got to build on the strength we have got as being probably the most efficient, certainly the most technically advanced, and I think the most environmentally responsible commodity supplier in the world. We have got this high ground; let's keep it. We think that the policies of the Bank of Canada must take an account of the realities faced by the natural resource industries.

We would love to see a clear, coordinated and pragmatic set of rules and regulations which would eliminate jurisdictional overlap, enhance compliance and foster rather than discourage investment. Our current regime across this country -- and it's from coast to coast -- is complicated; it's excessive and the refusal of governments to set priorities has resulted in excessive environmental costs to the mining industry.

I think the biggest tragedy in all these sets of environmental rules are that the air here in Halifax is not one bit better to breathe than it was ten years ago. We are busy making rules but we aren't really doing anything about the real environmental problems. Where I live, just outside Toronto, you still can't drink the water out of the nearby streams.

Finally, we have to recognize that our future prosperity depends on expansion of our industries, our end resource industries. There is an attitude among academics and government policy makers which suggests that reliance on natural resources is old fashioned and it should be replaced. This attitude, we feel, is unrealistic and dangerous and should be dropped. Strategies for stimulating and improving Canada's economy and our global competitiveness must be founded on our inherent strengths or abilities and our natural endowment. That is, on our natural resources.

Thank you.

Mr. Scott. HONOURABLE JOHN MacDOUGALL: Thank you,

Would there be any questions or comments?

If none, we will move on to the last presentation of the morning, and could we ask Dr. George Miller to come forward on behalf of the Mining Association of Canada?

Keith Hendricks, are you going to come forward also for the presentation?

MR. KEITH HENDRICKS: Maybe what I can do, Chairman, is introduce George and introduce our brief.

I also wanted to take this opportunity to thank the organizers for inviting MAC to make this submission on behalf of the Canadian mineral producers. I might say this is a joint presentation, both of the Mining Association of Canada, the Coal Association as you heard earlier, and also the Provincial and Territorial Mining Associations and their Chambers of Mines.

I would like also to congratulate the host province, Nova Scotia, on mounting what I consider to be an excellent conference. I have attended -- not many of these -- but many other conferences and I think this one ranks highly on the scale. Certainly we have enjoyed -- and I think we will continue to enjoy tonight -- the traditional and well-regarded "down East" hospitality and we appreciated the expanded format which Nova Scotia has introduced, which, in our view, has allowed time for substantive discussion and I think realistic recommendations to be presented to the Ministers.

Also, I would like to say that the topic that we are discussing -- managing Canada's mineral endowment -- is, in our view, primarily a joint effort in the management between industry and governments and, therefore, it only highlights the significance and importance of this particular meeting.

George Miller, whom you all know and who is the President of the Mining Association, will quickly go through our submission. You have already received copies of it. It is rather voluminous but I think the size indicates the significance and importance of the issues and how we regard this opportunity. And also, many of the points have already emerged from previous presentations and the workshop discussions so we will make it brief and pungent.

Gentlemen, ladies, thank you very much. George.

MR. GEORGE MILLER: Thank you, Keith.

Ministers, Ladies and Gentlemen. The theme of your conference is the importance of the mineral industry to Canada and I think the earlier speakers have emphasized that importance and have also realized that the contribution the industry makes could dwindle in these trying times unless we get our act together, and that means that industry has to have appropriate strategies. And while I am on the word "strategy" I will mention that our submission is based, in part, on a strategic planning exercise carried out by the Mining

Association in the past year, and we also feel of course that government policies are very important to the attainment of our joint objectives.

As to the strategies of mining companies, we realize that we must remain competitive within Canada. We have made serious efforts and are making efforts to advance productivity and technology. We know we have to rise to an environmental challenge while meeting global competition and maintaining a global outlook. When we finish that we will go home and have dinner. But at the same time, companies operating within Canada have an obligation to assess global investment opportunities. And in this connection, as the previous speakers have pointed out, Canada has many assets but it also appears to have some liabilities at present.

We believe that government policies can promote competitiveness of industry -- and I don't mean simply the mining industry -- but there is a need to promote the competitiveness of Canadian industry generally. But at the same time we realize that governments have to satisfy other policy objectives while maintaining a viable economy and it's not an easy task. We realize that Ministers have a balancing act and we think that these types of meetings are important so that we can come to a better understanding of each other's needs here.

One of the most important challenges we have at present is the environment. Our industry is committed to responsible stewardship, as has been mentioned several times. We are prepared to continue to eliminate shortfalls in our environmental performance where they exist, but we also believe that there is an important challenge in gaining recognition for the efforts we have already made and for the successes we have had.

Government can help by setting up appropriate standards and processes of regulation. We don't deny the value of regulation but we think that processes need to be thoroughly thought through. We are looking for equitable tax treatment to promote environmental improvement; we will say more about that. We appreciate the comments that have been made by Ministers and the workshop participants on promoting an accurate public understanding of our environmental performance, and I think that our first recommendation -- namely, a task force to deal with the environmental performance of the industry and to increase public awareness -- has certainly been partially accomplished already by the intervention of the Minister from Yukon.

In Canada there is a growing problem, namely the uncertainty and the impact of the costs of compliance with environmental regulations. The processes of achieving regulation are not always satisfactory

because consultations are either missing or things are put to the industry with ridiculously short deadlines; sometimes only a matter of days to try to reach a consensus and comment on a government proposal. There is a growing pace of regulation. We are all concerned about the overlapping responsibilities and the problems with the ERP guidelines and so on.

Now, uncertainty and delay clearly deter investment. Moreover, the possibility that the goalposts will move leads to a growing expectation of an increasingly unfavourable environmental and regulatory climate tomorrow. This clearly deters investment. You have seen examples already of legislation apparently based on a desire to punish rather than to encourage constructive behaviour. This apparent hostility to economic actors is reflected in the "deep pockets" legislation we see in some jurisdictions as applied to environmental liability and in some of the proposals for environmental bills of rights that would allow intervention by individual citizens with clearly unpredictable results.

I mention here the impact of international influences. More and more regulation is not being made in Canada but through international agreements and conventions. While believe industry has the responsibility to seize the initiative as much as possible by taking effective action in advance of regulation, at the same time we are seeking a stable and workable system which will allow everybody's objectives to be met. In order for that to happen governments must display regulatory discipline, which means adopting certain principles for the process of making regulation; principles and processes which are fair and accessible. Our brief lists several such principles and I don't need to repeat them here.

Clearly, we believe the Minister of EMR should work more and more closely with his colleagues and with other governments and with the industry so that international agreements are based on or reflect Canada's broad interest. We also believe that the Ministers here could accomplish something useful by appointing a task force to review the overall impact of regulatory assessment and duplication in the mining industry.

A special case of new requirements have come to the fore in recent years, namely mine decommissioning issues. As has been discussed already several times in the case of tax treatment of contributions to a mandated reclamation fund, we feel that so far we have had an unsatisfactory response from the Finance Department to our earlier request. We have also made several suggestions regarding the design of all kinds of financial assurance mechanisms, including trust funds, and submitted a discussion paper with our written brief.

And these suggestions have been discussed with IGWG so we would like to recommend that Ministers here support the concept of deductibility of contributions to reclamation funds, and also that we believe that the recommendations we have made for the design of such funds could be endorsed and are a reasonable basis for discussion in jurisdictions where these proposals are being developed.

Clearly everyone here is worried about the public image or, as we have said now, the public reputation of mining. Our own public opinion research shows that although there is some appreciation of the economic performance of the industry, there is a lot of concern in the public with respect to our environmental performance. The facts about our performance are not particularly well known. I could give many examples of this but I will do so privately if you wish. And the major problem, perhaps, is that both industry and government don't have a high credibility rating.

We believe a strategic approach is needed to remedy this problem. We have been working on such an approach now for two years -- more than two years -- and I think we have an approach that will help. It means that we must be prepared to continue to take voluntary action on the environment to demonstrate our credibility and our commitment because the environment is where we are most vulnerable; all of us. So, again, I thank Ministers for their predisposition to work with the industry to enhance communications efforts and lead to a more accurate understanding on the part of the public.

The problems of land use and access have come to the fore already in the conference. No one knows yet what the cumulative impact of all of these withdrawals is. We believe that mineral resource assessments, prior assessments before land is withdrawn, are important -- they are not fool proof but they are important -- and the processes could be improved. Clearly, until they are settled the claims of aboriginal peoples create uncertainty. We fully support the settlement of these claims at an early date and an equitable settlement and we are confident that we can develop a constructive relationship with aboriginal groups to get on with the job of satisfying their need for preservation of their activities, their culture, and at the same time provide economic development opportunities.

The mining industry has adopted a coordinated approach to a land use strategy by forming a mineral industry land use committee called MILUC. We have discussed here already the existence of a reliable data base. We want to cooperate with government and with other land users. We have several recommendations on the issue of land access, the first being that we would like provincial and federal governments and territorial governments to

continue to cooperate by providing accurate information for use by the land use data base, and we will also be looking for financial support to enable that joint effort to go forward.

We would like to see Energy, Mines and Resources and also, by implication, provincial mining departments to be involved in land selection. There is a process at the federal level. It's not funded adequately in our view and it's not necessarily allowed to go forward at an early enough date when park lands are being selected.

We would also like to emphasize again that we think it's in the interests of Canada to have an early and just settlement of aboriginal claims and we believe that Mines Ministers can play a constructive part in that goal.

Human resources is an important aspect of our industry, as it is of all industries. It's an absolute requirement that we manage that resource appropriately, and for that we need reliable information about skill levels, likely evolution in technology, and so on. Another aspect is that native participation could be increased, and should be increased. Our strategy for dealing with this issue is to get the data out. We are grateful for the assistance being offered by the federal government to a joint effort which has arisen from the academic side - the Centre for Resource Studies -- that first conceived the idea at a workshop which they held several months ago. This was picked up by the United Steelworkers, the Mining Association of Canada, and the CIM, and is now going forward in a study of human resources in mining.

We also offer our support to a study -- of which a very interesting report is in your kit today -- performed by IGWG on the native participation in mining. There is also a study going forward by the Centre for Resource Studies which we also support. We would like to recommend to Ministers that they give priority to the continuation of the IGWG study on native participation and that industry is quite prepared to be involved in that.

It has been clearly demonstrated that we need to promote mineral exploration in Canada. The prospect of successful development is the thing that will help to pull exploration along. We have declining reserves of base metals; we need to replace them and I think we need hard data on the causes of the decline in exploration and development spending.

There is also a need for exploration technology and that is being worked on in the industry through MITEC. There is a need for sustained quality mapping. We applaud the efforts of mineral development agreements to produce additional resources for mapping, but we would be very concerned if that

temporary resource were to replace sustained, so-called "aid base" funding of geological surveys across the country. We do recommend that industry and Energy, Mines and Resources work cooperatively to provide factual data and arrive at a good understanding of the relationship between exploration effort and finding success in Canada, and I would also at this point refer to a recommendation made by Keith Hendricks yesterday to study exploration and development spending by Canadian companies in Canada and abroad and develop some hard information rather than the anecdotal information which has been available to date.

I would like to say a few words now on behalf of Canada's largest mines, the Oilsands Mining operations. They are technically sophisticated operations and they have lessons for the application of research and development for all of Canada's mining industry. As we all know, conventional crude oil reserves and the supply of conventional crude are declining and the development of the oilsands could offset this decline. There are other ways of offsetting the decline but we believe that the mining of oilsands is a clearly demonstrated technology. We know where the oilsands are and this would be one of the best ways to maintain our energy supply.

There is a unique opportunity now, through the use of new technology involving hydrogen -- hydrogen plus -- to use our natural gas resources, of which we have a lot, to combine that with the oilsands resource, of which we have a lot, to produce a superior product through the elimination of some of the aromatic hydrocarbons, and we will have a seminar on this subject later. But in fact there are good technical reasons to say that this process would provide an environmentally safer fuel. We believe that it would be worth the time of Energy and Mining Ministers to study this matter with industry to develop this concept further.

Clearly, overall framework policies of government are also very important. Many have already been mentioned today: spending policies, fiscal policies and the growth of deficit clearly have an impact across the board on the ability of governments to pursue other objectives. We talked about macroeconomic policy in terms of interest rates and exchange rates. Taxation policies at the present time of high deficits seem to be clearly designed to maximize revenues, but of course this must be at the expense of other fiscal policy objectives. We have some concerns about labour market policies and labour relations policies you see in the impact of labour cost in some of the earlier graphs. The incentive and assistance policies have been modified in recent years in Canada, not necessarily for the better. One particular form of that is infrastructure, which is badly needed in some of the outlying areas of the country, and there are many other areas that could be mentioned.

To us the policy trends in recent years seem to be, on balance, somewhat unfavourable to business generally. Canada is becoming and has become a high cost place to do business, and the impact on our industry is quite clear. We believe that, with the participation of Mines Ministers in the deliberations of government, that a mix of fiscal and monetary policies could be introduced which could reduce deficits at an increased rate but restrain increases in prices and taxes so that competitiveness could be enhanced.

Of particular concern to our industry is the indirect taxation of business inputs. This is clearly another example where the desperation for revenue to reduce deficit has led to an inappropriate result because increasing industry input costs clearly reduces the competitiveness of industry. It's counterproductive for a global producer of minerals to be forced to pay greater costs for its inputs, such as fuels. The excise tax on fuels for which some relief had been given in earlier years is now applied fully to fuels for off road activity and is a serious problem for large operators of mobile equipment and for transportation costs. In our view this should be rolled into the GST, and that was our expectation before the GST was introduced.

So we would like to recommend that governments avoid indirect taxation of business inputs wherever possible, and also avoid other non-profit charges which limit the capacity of industry to compete.

The perverse policy of the federal government in selling gold from official reserves has been mentioned. Quantities approach or exceed a bit in ounces per annum in the past few years and Canada is clearly the leading seller world-wide from official reserves. We are concerned that this undercuts the industry's own marketing efforts and could set a precedent for other countries which hold very large stocks of gold. If any of those countries followed Canada's lead we would be in serious trouble indeed in the gold market. We believe it would be very appropriate for Ministers of Mines to express concern about this policy to the Minister of Finance and we request you to consider asking the Minister of Finance to review the present policies of gold sales.

I mention that in order to explore enthusiastically we need to be able to develop enthusiastically so that a coherent policy mix would favour development, and infrastructure is an important element. In our brief we cite the example of Yukon where a comprehensive proposal has been made by industry. We are not in a position to comment on the details of that proposal but we do believe that a strategic approach by government could assist decisions about infrastructure and other development tools which would move us forward in regional development.

Fellow Ministers, I would like to conclude by saying that the mining industry has the potential to make a major contribution to Canadians for many years to come. The potential will only be realized if Canadian industry remains competitive in the global village, and our workshop yesterday would certainly bear that out. Public policies can assist or detract from this objective. The industry invites Ministers to join its efforts once more to make minerals our natural strength.

"Minerals, our natural strength" is the vision statement or slogan that was developed by the Mining Association of Canada in its strategic plan. We think it says a lot in a short space of words and we would like you to think about it.

Thank you very much.

HONOURABLE JOHN MacDOUGALL: Thank you very much, George and Keith, on your presentation.

Any questions or comments?

MR. DENNIS LOVE: Mr. Chairman, I would like to comment. My name is Dennis Love. I am general manager of mining with Syncrude Canada in Northern Alberta and of course you can assume that I am going to talk about oilsands. But I would to say that, first, thank Dr. Miller for bringing that forward.

The Mining Association of Canada has been very supportive in recognizing the potential of the oilsands, and I think that most Canadians don't actually realize what the real potential is. I am building a little, I think, on the presentation by the speaker for the Prospectors and Developers Association too. He spoke of economic growth. We have heard about a lot of areas of concern today -- and yesterday for that matter -- and I guess I just want to say that up in Northern Alberta we have the reserves.

I can't understand why we would want to purchase offshore when we can actually get it at competitive rates in Alberta. I don't understand why we would want to send all our money offshore for that matter. For example, there are two operating plants in Alberta in the oilsands. These are commercial operations. They produce about ten to twelve per cent of Canada's oil consumption. Those two plants alone push about a billion and a half dollars into the economy. And I can tell you that a lot of that is for good and services and those expenditures are right across Canada, and I can tell you that Ontario and Quebec enjoy the benefits of that operation as well; particularly high

population areas.

And so I would really like to leave you with the impression that there are real sparks of hope in our country with respect to the oilsands and what it can do for our economy, and I would like you to take that very seriously in consideration when you are thinking about our future and there is a proposal put forward by the MAC to form a joint working committee. We would like to put the seeds of thought forward in this regard and so I would urge you to consider that.

I would like to move off to one other subject because I have the floor for the moment. It was a comment that was made yesterday that I just haven't felt comfortable with ever since I heard it. But I heard the senior member of a leading union organization in Canada refer to cooperation and/or confrontation, and it has really irked me ever since I have thought about it and I just wanted to put it in this perspective. I think that confrontation in this day and age is like fighting for deck chairs on the Titanic.

Thank you, Mr. Chairman.

HONOURABLE JOHN MacDOUGALL: Thank you very much.

Any further comments?

MR. JOHN CARRINGTON: I am president of New Brunswick Mining and Smelting.

I wanted to comment on exploration. Fenton Scott and George Miller both made some comments, and George made the note about some of the data was anecdotal. Well, I would like to give you an anecdotal and a description of what exploration is all about.

It's like playing a game called gambler's ruin, and for anyone who is a professional gambler or a statistician he will know that gambler's ruin is a game where one person has a finite resource and out of money, playing against an opponent with an infinite amount of money. And the game is an even game, perhaps flipping a coin, but every time you gamble you double the anti and the question is who is going to survive in the long run. Intuitively we know, and mathematically it's correct, the person with the infinite bank lasts for the long run because there comes a point in time when doubling the anti -- that amount of money is more than the stake that you have and you are going to lose if you keep on playing the game.

Well, the analogy is that exploration is something like playing gambler's ruin because the players are the industry or the person trying to find the ore body, and that is the person with the finite amount of resources. Either he runs out of money or she runs out of patience. It doesn't matter, but sooner or later if you are not successful you are going to pack your bags and go home. The other player is mother nature, and her commodity is time and she has an infinite amount of time in which to reveal her resources.

So, if the answer is that mother nature is always going to win, why do we play the game? Well, I think the answer really lies -- or the question was that the answer lies in recognizing that we are not going to play a fair game. We are going to try to stack the odds somewhat in the industry's favour, or the guy who is trying to do the exploration, so that it's no longer 50/50. And that is the important thing. We need to stack the odds in our favour to be successful, and there is a role for all of us to play there and certainly one of the roles of government is providing policies and practices which in fact allow the industry or the people doing this to do it in the most expeditious and efficient fashion.

The roller coaster graph of the oil reserve situation in this country is just disastrous and that is a bread and butter issue for us. If we don't succeed in replacing the reserves there simply isn't going to be an industry. Now, I am not suggesting that this is a sunset industry or things like that, but that is a very, very significant point.

So I really wanted to encourage you to take seriously the concerns and recognize that long term exploration involves three things. It involves an awful lot of money. It involves persistence and time and a commitment to the long term. And it requires expertise. So, your role is to help the industry succeed in that so that we all benefit in the future.

Thank you very much.

HONOURABLE JOHN MacDOUGALL: Thank you very much.

Any further comments? We have a couple of commercials before we adjourn.

TUESDAY AFTERNOON, SEPTEMBER 24, 1992

(Part of proceeding not taped on resumption)

See insert at the end of page __ for a Summary of Proceedings.

HONOURABLE MR. NEUFELD: --- the deductibility of funds placed into the reclamation trust. We have beaten that one to death already, I believe, yesterday and this morning, and if there are any questions with respect to the work that has gone on in the last twelve months I would be glad to answer them.

HONOURABLE CHUCK MacNEIL: Are there any questions for Mr. Neufeld? I gather it was covered satisfactorily at the other sessions.

The second item I have on the agenda is comments on the workshops and the industry briefs, and as you are all aware, included with these were some clear recommendations to be dealt with. Does someone want to lead off discussion on any or all of those?

We have the sixteen recommendations from the Canadian Mining Association report which will obviously have to be dealt with in some manner. The task force we established this morning probably will look after one or two of those but the others, I think, have to be dealt with somehow.

UNIDENTIFIED: I do think it's important, Mr. Chairman, that all and every one of the recommendations that was placed before this conference should be dealt with in the future and we should ensure that there is a follow up. I think all too often the recommendations are left at the conference table.

HONOURABLE CHUCK MacNEIL: Do you have a recommendation for process for ensuring that happens?

UNIDENTIFIED: I think a year from now each one of the recommendations should be brought forward and discussed to see what was the outcome of those recommendations. Somebody should have the responsibility for bringing those forward.

HONOURABLE CHUCK MacNEIL: Would you likely

refer it, then, to the intergovernmental working group to delegate the responsibility within that group for follow up and reporting?

UNIDENTIFIED: I think that would be a proper place for it to be delegated.

HONOURABLE CHUCK MacNEIL: Everyone agreed?

UNIDENTIFIED: Mr. Chairman, I am wondering maybe if the intergovernment working group would probably need some direction with the number of items that is on that list. Where should they start? I am wondering if there should be some discussion. You know it's pretty hard to say to a working group "Here you are, go to it." We should get a feeling of what areas we should start off with, or just indicate to the working groups that they can have an opportunity to -- maybe there are some strong feelings of certain areas within that proposal that should be looked at first.

UNIDENTIFIED: Mr. Chairman, I might suggest then that we prepare a list of the issues that we feel are important as a group of ministers, and have those brought forward or have those delegated to the working group.

And I think there were one or two recommendations which might be deemed to have been recommendations, each and every one of the workshop minutes. We should go through those minutes, perhaps, or have the working group go through those minutes and pick from them the areas of importance.

HONOURABLE CHUCK MacNEIL: Any further comment or direction to the working group?

UNIDENTIFIED: Mr. Chairman, the one point that did come out very clearly in our group yesterday, as well as in the discussions -- and the federal government may have the answers already -- is to examine quite clinically the assertion of dollars going overseas. It keeps coming back to us that we are seeing that outflow of dollars. That was raised in the speech of yesterday morning and as recommendation number two in the Mining Association of Canada brief. If there is one priority from our perspective it would be very much on that side.

HONOURABLE CHUCK MacNEIL: I think that was the recommendation basically made by Mr. Hendricks at the end of his address; to develop a data base on that outflow of exploration capital.

Are you presenting that as we refer to the working group?
Is that a major priority that we definitely want dealt with at the next meeting?

UNIDENTIFIED: Certainly from our perspective it would be, Mr. Chairman.

UNIDENTIFIED: Mr. Chairman, I think we can support the notion that the working group should try to develop a set of prioritized recommendations that ought to be worked on.

It would seem to me, with the number of recommendations, there may be a task that is impossible in terms of carrying out in any thorough fashion. So there is a need for some prioritization to happen and I am sure that can come back to us as Ministers for any form of approval and devotion of resources. I speak somewhat selfishly because I understand the co-chair of the working group will now be the Yukon and resources will definitely be needed for any kind of reporting next year.

Having said that, I would note the decision, if you will, that we made this morning where we would set up some group of the working group to address the whole communications issue. I believe we already undertook that as a matter of priority for reporting back. So, treating that one as a measure of priority, and the financial question raised by the NWT, and of course any others as priority, would be very helpful but I don't think we can deal thoroughly with all of them.

HONOURABLE CHUCK MacNEIL: It has been suggested that the working group might do a prioritization and circulate that to the Ministers -- do a listing and circulate that to the Ministers for prioritization short term, so that during the year those we chose will be dealt with in detail.

UNIDENTIFIED: I wonder, Mr. Chairman, if we could go further and ask the group to perhaps come up with different subsets of the recommendations. As you look at them on page 44, on, some of them will require work, some will require response, some will require task force involvement, some will require consultation between governments and industry.

Perhaps it could take the recommendation list, as you say prioritize it; at the same time, separate the recommendations out into different groups and then perhaps come back with an action plan for Ministers, say, within three months, get that signed off, do the work, say, over the next months, and then have a report out, say, three months before the next conference. So that in the last three months of the coming year Ministers and officials can sort out what

has to be done leading into the next conference so that we are not discussing a report fresh from the printers twelve months from now, but rather we are evaluating what was done and what wasn't done and then what should be done beyond the next twelve months.

HONOURABLE CHUCK MacNEIL: No further comments? I suggest that everyone agrees with the last comments?

Very good. That will be the approach then. We will refer all the recommendations to the working group and expect a response within three months.

The next agenda item listed here is comments on the tailing, reprocessing. I understand the paper has been circulated for everyone on that. Are there comments to come forward?

I think the industry people must have beat you all over the head to have an hour off. I can't get a word out of anyone.

Hearing none, are there any comments on the paper distributed as well on native involvement in mining?

UNIDENTIFIED: Mr. Chairman, if I might, at our work group yesterday we dealt with the question of native employment; had representation both from Ontario, from Saskatchewan, people who have been involved in the report. The comment was raised from our own delegates that they were concerned that Ontario did not have representation in terms of any response from industry. I know there was a problem because at the time the people who were involved were watching with great interest what was going on between the government and the signed agreement between the NAN (phonetic) communities, and did not at that point in time want to also go and approach industry because industry was having discussions with our own representative, our own negotiator, about how the process was going to work.

However, if there is going to be a follow up -- and I would encourage a follow up -- I would greatly appreciate that there be an emphasis placed on dealing with Ontario companies who are involved, but also dealing with some of the native communities. We have success stories in two communities -- Dono Lake Mine and also Golden Patricia -- where resource development agreements have been signed and particular degrees of native employment have been worked out, both with the union, the band and the federal and provincial governments. And we would encourage that kind of development but we need to know what is going on in some of those communities, and that information, as I

understand it, was not provided in the report.

HONOURABLE CHUCK MacNEIL: Do you have any suggestions on our method of ---

HONOURABLE MS. MARTELL: My apologies, Mr. Chairman. If we are going to do a second round of this work we need to pick up those companies in Ontario who weren't picked up in the first draft of that report to see what their success rates have been. I would like to know, in particular, what kind of approach they have made with native communities, either tribal councils or to broader groups of natives. And I think that that would certainly be beneficial to the native groups that we brought here who had some concerns at not seeing Ontario represented at all.

MS PAT YOUZWA: Mr. Chairman, if I may make a few remarks here. Saskatchewan co-chaired the IGWG subcommittee with DYAND last year and the subcommittee has -- and I guess this is the second phase of its work -- is seeking from Ministers the endorsement of a report which you is prepared and has been distributed to delegates at this meeting -- the endorsement -- so it can receive broader circulation and also to have its mandate extended for another year.

There is a view by the subcommittee that it would like the opportunity to build on some of the findings on work that it has undertaken over the past two years and to expand some of its work. And in particular it has prepared and has laid the ground to involve labour and aboriginal organizations that may not have had an opportunity to participate in the last year.

HONOURABLE CHUCK MacNEIL: So the second year mandate would address the concern that Ms Martell (phonetic) has presented to us?

MS PAT YOUZWA: Yes, it would.

HONOURABLE CHUCK MacNEIL: Thank you.

So is that the approach we would like to take: extend the mandate for another year so that the scope of the study could be expanded?

Mr. Byblow.

HONOURABLE MR. MAURICE BYBLOW: Mr. Chairman, I would support that. I think, clearly, within the mandate of the

subcommittee of the working group we can still pursue the subject, largely because it is one of considerable focus in the industry and in the marketplace. I take, from the Yukon perspective, just in the course of last year we had some very progressive activity involving bands and mining companies in the development of socio-economic agreements that speak to employment and participation between industry and aboriginal groups.

And that is something that is a subject in many of the discussions that have taken place at the conference, it is the subject we would like to see -- from my perspective -- on the agenda next year, and I think we have got some success stories to pass on.

HONOURABLE CHUCK MacNEIL: Saskatchewan.

MS PAT YOUZWA: Mr. Chairman, I should have added in my remarks earlier that Saskatchewan would be prepared to continue co-chair of the committee for next year, if that was acceptable to the group.

HONOURABLE CHUCK MacNEIL: No one wants to oust them and take over, do they?

I guess it's agreed you co-chair again.

Do you agree that we have satisfactorily dealt with that issue, then?

Also on our agenda is a report on mineral explorations and flow through share funding. I believe we have someone here prepared to address that item.

UNIDENTIFIED: Mr. Chairman, I would just make a few brief comments.

There is no doubt at all, as we have heard in discussions either yesterday or this morning, that the exploration community is going through some difficult times. Roughly this year we are looking at somewhere between \$550 and \$575 million worth of exploration, and the difficult problems -- it's a combination of reasons why we are not doing more I guess -- in fact the aim that the Province of Quebec, with their incentive programs.

Minister, you have mentioned that the Province of Manitoba we are looking at -- within the province itself -- of an incentive program. Federally we are certainly trying to do what we possibly can in joint ventures

with the provinces, whether it's the MVAs, whether it's work with MILUC in regards to indicating to bands across the country that can be used or out of use, and also with the GST and a base budget.

Maybe we should just open it up for some discussions and see what some other thoughts may be in regards to the industry.

MR. MIKE DANNECHERRE: Mr. Chairman, I am Mike Dannecherre (phonetic) with the members with Manitoba. Enacted just in our last session we were proposing to top up, on a flow through share basis, by 25 per cent of the investment for exploration expenditures incurred in Manitoba and investments made by Manitobans. So we are restricting it to a total Manitoban development.

We have enacted that. The regulations are being drafted as we speak and we should have information as to the success of that program by spring of next year.

HONOURABLE CHUCK MacNEIL: I believe we have all received a copy, as well as a letter, from our honourable colleague in B.C. to Honourable Jake Epp requesting that the federal government reintroduce incentive programs for exploration work. It encloses a letter asking our support in his request.

Receive any comment on the letter?

UNIDENTIFIED: Perhaps I might just indicate to everyone what was behind the letter.

First, it was not to necessarily ask for the reintroduction of flow through in the sense that there has been a lot of analysis done on flow through and we were concerned that we should not be seen to be asking for the reintroduction of programs that, because of program design or just the tax system per se, people could take advantage of them and not get the maximum benefits from the program. In other words, we didn't want to ask for something to be introduced where there could be criticism of the incentive in terms of companies being able to take advantage of the incentive and/or the incentive not really working the way it was intended to work.

Secondly, we wanted to make the point that we in the province -- as all the other provinces are -- were very concerned about the level of activity, the fall off in expenditures, the fall off in financing. We have got various statistics we can show but most of them are reproduced in the briefing

notes and in the briefing books.

Thirdly, we have no magic solution, we have no magic idea about what can be reintroduced. The philosophy we wanted to put forward was, shall we say, responsible support for industry, to understand some of the concerns of the federal government in the tax department. But as Minister Neufeld has told us he has been trying for over a year to get any reaction out of Ottawa. And I guess we felt right ready to go after that meeting you are trying to get with the Minister of Finance and to start putting some ideas forward that the federal government could react to rather than just concepts.

So the letter was one asking, I guess, for a united front in terms of raising the level of action on this item up to Minister to Minister level and to start getting some policy ideas on the table so that, in the alternative, each province wouldn't have to do what Manitoba is doing, Ontario and others; sort of a self-defence kind of reaction where you are really filling the void that was created with the backing out of federal tax incentives, because all that will happen in the long term is we will end up competing against each other for the same investment dollars and that can lead to a waste of effort and resources.

UNIDENTIFIED: Mr. Chairman, I would certainly speak on behalf of Newfoundland in support of the British Columbia Minister in his request to do something. I commend my colleague from Manitoba for taking some action. I note that other provinces are doing their best as well. Quebec is continuing its program. Unfortunately, Newfoundland cannot afford -- on the best of my knowledge about our financial position -- to initiate any program on its own. And as was stated by my colleague from British Columbia, we are just going to be competing for the crumbs that are left.

I co-chaired the session yesterday, workshop four, "Challenges in Mineral Exploration," and the message was coming through loud and clear. We have to do something on the national scale -- a national approach -- as indicated in this letter from British Columbia's Minister of Mines. Otherwise, the dollars are going South. They are going South now.

As the president of the Prospectors and Developers Association told us this morning, when 83 per cent of the investment in seven mining ventures in -- was it Chile -- about \$400,000,000.00 are coming from Canada when there is a 200 per cent increase in the United States and in other countries of expenditures by Canadian companies and a 20 per cent decrease at home. We need to do something with a national approach.

So I fully support what is suggested by the Minister from

British Columbia.

UNIDENTIFIED: Mr. Chairman, I would like to try to defend myself a touch here.

I think that there is no doubt at all that we certainly have a problem within the industry. We have a problem within the country. And the federal government has got a big problem also. It's the number of dollars that we have.

We have got to decide on how we are going to be able to spend dollars and I haven't got a problem going back, saying to whoever that we want to bring back a program. Glad to do it. Now, what are we going to cut? MDAs? I mean that is the balancing act that we are faced with. And that is a problem we have all got to deal with. We have a bigger problem too; is the fact that there are grounds that have come open around the world that may look a little richer than what we may have here in Canada but fewer problems to deal with in getting access to these lands. And quite frankly some of the companies are looking at that.

So I don't think it's just on the investment climate side of it. I think there is a lot of other factors that are out there why industries are looking at going to other countries. And I think we have got to look at the overall approach, and the overall approach, I think, that resource and the provinces have the will of the resource. And I think that that is one factor that we have got to take inclusion with it; whatever we look at doing we have to look at doing it jointly. And it would be very nice for me to be able to make great announcements that we are going to do something in an incentive program but I know right now that we have got a very difficult time and the word "incentive" is not a very good word around these days in Ottawa and we have got to see how we can come up with an adjustment that will help the industry on a joint basis.

UNIDENTIFIED: Mr. Chairman, I think there were mentioned other issues besides money that was chasing the investment dollars to the South, and it's in those areas perhaps that we should concentrate as Ministers. And the areas that were mentioned were regulations. We perhaps are too stringent. We perhaps are too bureaucratic at times. Without giving up any of our environmental goals we should take a look to see whether or not we can't permit the mining corporations to bring in or do exploration work without the red tape that they feel, at least, that they are being subjected to. And I think we should work with the industry to ensure that wherever we can we eliminate the red tape. That may be a place to start.

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Taxation is one issue and that is, to a large extent, provincial as far as mining taxes are concerned. And we are the big culprits in that in Manitoba. We are the highest taxes, but I am told by the industry that that doesn't necessarily keep them away from Manitoba if we have good, rich prospects -- which they claim we do.

So we have to look towards the regulations first, I think. There is land use. That presents hindrances in some areas. So we have to look to the areas other than monetary, I believe, to ensure that those corporations that want to do business within our borders are not held back for red tape reasons.

UNIDENTIFIED: I think B.C. made it quite clear that we weren't really requesting the reinstatement of old programs that perhaps may have wasted some money, but rather that we look at the policies of old for encouraging investment; not necessarily asking for grants or direct expenditures on the part of the federal government.

UNIDENTIFIED: I wonder, Mr. Chairman, if we could look at the Hendricks' study as probably the bench mark to really get involved with it. I think that would really give us all the information as soon as possible. We could put that as the high priority right now and then we will have a better feeling.

UNIDENTIFIED: I think in that regard each and every province has to look at their own regulations to make sure that they aren't the ones, then move on from there. I do believe that in some instances -- we did a study in Manitoba and in some instances we had to plead guilty. We have brought in a new Mines Act which we think is going to be of some help. The industry has welcomed the new act and hopefully that will encourage them to do some more exploration work in Manitoba.

HONOURABLE CHUCK MacNEIL: No further comments?

That completes the scheduled agenda items. Is there anything anyone wants to bring before the meeting before we adjourn?

We once again thank the Yukon for the invitation for the conference next year. We look forward to being there.

If there is nothing to come forward then I remind the Ministers that there is a small press conference here at 4:30, so if the Ministers would return about that time I would appreciate it very much. Again, there is no

communiqué; it's purely questions from the press that each of us answer.

UNIDENTIFIED: Mr. Chairman, just before closing, as everyone maybe have had the opportunity to get the communiqué from Ottawa in regards to the constitutional changes. A lot of the industries that we are dealing with, both mining and forestry and tourism, are certainly being put on the table for negotiations. I hope that we take some time over the next number of days and weeks to ensure -- I think it's a critical time in the future of our country for all of us. We have tried to get as early communiqué as possible for you to give you some background on what has taken place. The document is large, about 59 pages, to be bed time reading, but I hope that you will have the opportunity to go through it because, for all Canadians, we have to sit down and reflect and ensure that we all have the opportunity to dialogue and discuss in the next coming weeks.

I would also like to thank you, Mr. Chairman, and the native labour and provincial representatives and industry for the last two days. Not too often two of us from Nova Scotia get the opportunity to keep the rest of Canada together. We have done a fine job, again, so, again, thank you, Mr. Chairman.

UNIDENTIFIED: Mr. Chairman, reacting to that Newfoundland I have a xerox of a page that came out of that report and I would just read one paragraph there.

"As part of moving government closer to the people the federal government is prepared to confirm exclusive provincial jurisdiction in a number of areas including forestry and mining, tourism and recreation, housing and municipal affairs. However, the federal government will continue to exercise its responsibilities for international and native affairs. It is also committed to the preservation of Canada's research and development capacity."

Would you mind, Mr. Co-chair, making a comment on that -- if you have any knowledge on the details of that -- from your perspective?

HONOURABLE JOHN MacDOUGALL: I am not prepared at this moment, Mr. Chairman. I haven't had a chance to read through all the documents myself, Rex. I think there will be a lot of dialogue over the next number of days on it.

UNIDENTIFIED: I won't say anything further on it but I

just thought that people should know that that is one paragraph that is there.
That is verbatim from it.

UNIDENTIFIED: I wondered if you were going to give us the GST and start giving us lots of money to do surveys, John.

HONOURABLE CHUCK MacNEIL: I thank all of you very much for what I hope has been a great convention. I look forward to seeing you all here at six tonight for the reception and lobster party, and for those who aren't staying on for the Energy Ministers meetings I trust you will have a good tour tomorrow and a safe trip back home.

Thank you very much.

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Plenary Session 3, Summary of Proceedings

Six Pages Inserted Here

Plenary Session 3

Summary of Proceedings

1. Review and Summary of business from the Manitoba Conference

The Honourable Harold Neufeld, Minister, Department of Energy and Mines, Manitoba presented an update report since last year's Ministers' Conference. The issue of the deductibility of funds placed into the reclamation trust was noted having been more thoroughly discussed earlier during the conference.

2. Issues from Workshops and Industry Association Briefs. Doc. # 830-399/007

The Honourable Chuck MacNeil, Co-Chair, noted that there were several recommendations stemming from the various briefs from Industry Associations of which the Canadian Mining Association put forth sixteen recommendations. The meeting felt that all recommendations should be follow-up and then discussion centred on the process of ensuring such occurs. It was agreed that the Intergovernmental Working Group (IWG), co-chaired by the Yukon would itemize and prioritize the recommendations into different subsets. Some recommendations would require a response, others would require consultation between governments and industry and others would require task

force involvement. The IWG would then prepare an action plan within three months for Ministers to consider and approve. Over the next several months work would be completed and a report would subsequently be made available to Ministers approximately three months prior to the next annual conference. This would allow Ministers and officials to determine what has been completed, yet to be completed and what should be continued for the next twelve month period.

3. Tailing Reprocessing
Doc. # 830-399/011

There was no discussion by the meeting on this topic.

4. Native Involvement in Mining
Doc. # 830-399/010

The meeting agreed to extend for another year the mandate of the subcommittee of the IWG on the Mineral Industry. Saskatchewan once again along with the Department of Indian and Northern Development (DIAND) would act as co-chairs so that the scope of the study could be expanded to involve labour and aboriginal organizations that may not have had an opportunity to fully participate last year, which was a noted concern for the province of Ontario. Others would be invited to participate in the study.

5. Report on Mineral Exploration Expenditures and Flow Through Store Funding
Doc.# 830-399/012

Mr. Mike Dannecherre a delegate from Manitoba noted that during the last house session the government enacted legislation to top up, on a flow through share basis, by 25 per cent of the investment for exploration expenditures incurred in Manitoba and investments made by Manitobans. The regulations for such are currently being drafted.

The meeting endorsed a letter from the Honourable Jack Weisgerber, Minister of Energy, Mines and Petroleum Resources, British Columbia to the Honourable Jake Epp, Minister of Energy, Mines and Resources, Canada pertaining to incentive programs for exploration work.

Mr. Bruce McRae, Assistant Deputy Minister, Mineral Resources Division, British Columbia provided the following background information on the letter.

First, the province of British Columbia stated Mr. McRae did not want to ask for something to be introduced where there could possibly be criticism of the incentive, in terms of companies being able to take advantage of the incentive and/or the incentive not really working the way it was intended to work.

Secondly, British Columbia is very concerned about the level of mining activity, particularly as it relates to the fall off in expenditures and in financing.

Thirdly, British Columbia at present does not have any magical solution(s) as to what types of incentives can be reintroduced, however, the philosophy intended was to put forward a momentum for responsible support for industry and to understand some of the concerns of the federal government within the tax department.

In concluding, Mr. McRae stated that the letter was seeking a united front from all provinces/territories in terms of raising the level of action on this item to the Ministerial level, which would result in policy ideas/issues being put forth for the benefit of all. Hopefully, this would lessen the risk in the long term of provinces/territories competing against each other for the same investment dollars which inevitably could lead to a waste of effort and resources.

In support of the letter, the Honourable Rex Gibbons, Minister, Department of Mines and Energy, Newfoundland stressed that a national approach would be beneficial, noting a substantial amount of investment expenditures has already gone to countries in the South.

Mr. John MacDougall, Co-Chair noted that in order for the federal government to free up monies, cuts in other areas would have to be made. A bigger problem also is the fact that there are grounds that have come open around the world that may look a little richer than some in Canada and as well fewer problems to deal with in getting access to those lands which undoubtedly is attractive to mining companies. Hence, there are other factors why industries are looking at other countries to invest in and therefore it is importance that governments and industry jointly review an overall approach.

Honourable Harold Neufeld pointed out that other areas of hinderance may be related to certain regulations, being too stringent or bureaucratic. Elimination of excessive red tape would be helpful. In addition, taxation, particularly provincial and land use are areas to be reviewed.

The discussion on this topic ended with the suggestion that all provinces/territories review their own regulations as a first step in addressing the above concerns.

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List of Delegates

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excess to be removed

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concerns

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1. Annual Report of the Association of Chief Inspectors of Mines

